SYSTEM FOR PROVIDING CONTINUITY BETWEEN MESSAGING CLIENTS AND METHOD THEREFOR

Background of the Invention

Field of the Invention

This invention relates in general to communication systems and in particular to communication systems incorporating capabilities to provide continuity between messaging clients.

Description of the Related Art

With the proliferation of the Internet, the way people communicate is changing. Electronic communication such as electronic mail (email), and real time electronic messaging (e.g. instant messaging and chat messaging) is quickly replacing traditional telephonic communication and handwritten letters. Real time electronic messaging allows the simultaneous access to a message or a plurality of messages by multiple account users, with each account user capable of inputting a message or a plurality of messages to a messaging session. Each inputted message is relayed to messaging clients operating on messaging devices (such as computers) of the other account users who have chosen to participate in that messaging session. The other session participants can respond with their own messages, which are likewise relayed to all the participating devices. These messages are typically text messages that are delivered to the intended recipient(s) of the message in a real time manner. However, these messages may be in a variety of different media formats or combinations thereof such as audio, animation, video, images, etc. A session history of the messages received and transmitted by all participants involved in the messaging session is typically maintained on the individual participants' devices and typically presented on the screen of the respective device in the form of a scrolling dialog. This text history constitutes one of the attributes of the look and feel of the real time electronic messaging experience.

There are currently several standard methods available for account users to participate in messaging communications. For example, personal instant messaging typically occurs between two individuals. An individual can establish a private chat room so

that multiple users can participate in a common on-line conversation. Participants gain access to the private chat room by accepting an invitation from the creator of the private chat room. Non-restricted public chat rooms are available to anyone interested in the topic being discussed by simply selecting the desired chat room descriptor on the account user's device. In addition to the non-restricted public chat rooms there are limited access public chat rooms. An example of one such restriction is the limiting of the number of account users allowed to participate in the chat room. Electronic gaming is available to participants who register and login to join at least one other participant in playing one or more games. Communication of participants' "moves" are made through electronic message communications in messaging sessions.

Each messaging session can have various types of session attributes such as session type, session connection info, participants, filter settings, colors, relative font sizes, etc. The account user can also have various types of preferences such as colors, relative font sizes, buddy lists, nicknames, and parental control settings. These are only a few examples of the attributes and preferences that can effect a messaging session.

Several different devices, such as personal computers, interactive broadcast receivers and mobile communication devices, can be utilized to participate in messaging communications. Although these different devices can be utilized to participate in a messaging communication they all do not have the same set of features and capabilities. For example, display size, support for different media types, and cost of sending messages can all be different for different devices. Some messaging service providers maintain the same user preference settings such as screen names, buddy list groups, electronic mailboxes, and parental control settings regardless of which device is used to access the service. By having this capability the service providers are providing continuity of user preferences from device to device, which simplifies the use of multiple devices in the messaging system.

In order to utilize real time electronic messaging, a device is pre-configured with, or the user installs, application client software distributed by a particular service provider. The client software connects to a message server for communication. To access the message server, via a logon procedure, the client sends the routing information (e.g. IP address and number of the port assigned to the client, mobile phone number) of the device being used, the account user's username, the account user's password, and the account user's current availability setting to the message server. The message server temporarily stores the routing and availability information for the account user's device. In response to the account user's

login information (username and password), the message server provides the messaging client with the account user's contact list. The message server then determines the presence and availability of the account users in that contact list. If the message server finds any of the contacts logged in (i.e. presence setting is online), it sends a message back to the messaging client on the account user's device with the presence and availability information for that account user. The message server also sends the account user's presence and availability information to the people that have the account user in their contact list. The account user can click on the name of a person in his/her contact list who is online, and a window is created in which the account user can enter a message. The account user enters a message and clicks "send" to communicate with that person. The other person gets the message and can respond. Messages between account users may be addressed directly to the account user's device or may be addressed to the username and sent via the message server.

The window that the session participants see on their respective messaging devices typically includes a scrolling dialog of the session history. Each participant's messages appear in this window on all participating devices. Messages can have different attributes such as message formatting, sender identification, timestamps and others. For example, messages related to a particular electronic game could contain graphics enhancing the "look and feel" of the electronic game for the participants.

When the messaging session is complete, the account users close the message window for that messaging session. When the account user signs off, his/her messaging client sends a message to the message server to terminate the account user's participation in the plurality of messaging sessions. The message server then sends an update of the account user's presence and availability information to the people that have the account user in their contact list to indicate the account user has signed off. Finally, the message server discards the routing and availability information for the account user's device.

Some messaging services support access of a single account from multiple devices. Further, some messaging services also support simultaneous login of devices on the same account. Still further, some messaging services utilize a resource extension to describe the device that is being utilized to communicate. For example an account user logging in with a mobile device can choose to use "mobile device" as their resource extension while logging into the same account from the home personal computer may utilize a resource extension of "home computer".

When using messaging services that allow access from multiple devices, an account user can log on with a first messaging device and engage in conversations with other account users and later log on with a second messaging device. For example, users of mobile devices would typically benefit if a messaging session in progress on a fixed network device could be continued on a mobile device. This would allow the account user to continue the messaging session when the account user is no longer in proximity to the fixed network device. In addition the account user would benefit if a messaging session that was in progress on a mobile device could be continued on a fixed network device that may have a superior user interface.

In order to switch to a different device with existing technology, the account user may have to cause the currently connected device to disconnect from the message server. The account user would then have to cause the second device to connect to the message server and login. Finally, the account user would have to re-initiate each messaging session (one-to-one, public chat, private chat, electronic game) that was in progress on the first device. The disadvantage of this method is the numerous manual operations required of the account user to change devices. A further disadvantage is the lack of messaging session continuity. For example, the second device will not have the session history that was available on the first device, and the second device may not be able to re-connect to chat rooms that restrict the number of active account users since another account user may have connected to the chat room after the account user's first device disconnected.

What is needed is a system and method for maintaining continuity between messaging clients.

Brief Description of the Drawings

The present invention will be described by way of exemplary embodiments, but not limitations, illustrated in the accompanying drawings in which like references denote similar elements, and in which:

FIG. 1 is an electronic block diagram of a messaging communication system, in accordance with the preferred embodiment of the present invention;

FIG. **2** illustrates client data for use within the messaging communication system of FIG. **1**, in accordance with the preferred embodiment of the present invention;

FIGs. **3** and **4** illustrate more detail of the client data of FIG. **2**, in accordance with the preferred embodiment of the present invention;

FIGs. **5, 6**, and **7** are electronic block diagrams of various embodiments of a messaging device in which a messaging client of FIG. **1** operates;

FIG. **8** is an electronic block diagram of an alternate embodiment of a messaging communication system, in accordance with the preferred embodiment of the present invention;

FIGS. **9** to **12** are electronic block diagrams of various embodiments of the messaging communication system of FIGs. **1** and **8**, in accordance with the preferred embodiment of the present invention;

FIGs. **13** to **18** are flowcharts illustrating the operation of the messaging communication system of FIGs. **1** and **8**, in accordance with the preferred embodiment of the present invention;

FIG. **19** illustrates a message for use within the messaging communication system of FIGs. **1** and **8**, in accordance with the preferred embodiment of the present invention; and

FIGs. **20** to **24** are signaling flow diagrams illustrating the interaction between the elements of the messaging communication system of FIGs. **1** and **8**, in accordance with the preferred embodiment of the present invention.

Detailed Description Of The Preferred Embodiment(s)

As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention, which may be embodied in various forms. Therefore, specific structural and

functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the present invention in virtually any appropriately detailed structure. Further, the terms and phrases used herein are not intended to be limiting; but rather, to provide an understandable description of the invention.

Referring to FIG. **1**, an electronic block diagram of a messaging communication system **10** in accordance with the present invention is shown. As illustrated, the messaging communication system **10** preferably includes a plurality of messaging clients **12** for participation within a plurality of messaging sessions **24**. As illustrated, the plurality of messaging sessions **24** can include a messaging session **40** and/or a multiple user messaging session **19**. The plurality of messaging sessions **24**, for example, can include the communication of a plurality of electronic messages such as chat sessions, instant message sessions, and electronic mail, facilitating substantially real time communication among the plurality of messaging clients **12**. Similarly, the plurality of messaging sessions **24** can include communication of gaming messages for one or more gaming sessions (e.g. battleship, checkers, chess, tic tac toe and doom). It will be appreciated by one of ordinary skill in the art that the plurality of messaging sessions **24** can include any of the messaging sessions mentioned herein or an equivalent. Each of the plurality of messaging clients **12** such as a first messaging client **14** and a second messaging client **20** includes client software to interface within the messaging communication system **10**. The client software, for example, can include a software application for communication through an Internet service provider. Further, the client software can include a software application for participation in one or more electronic games offered by a gaming software provider. It will be appreciated by one of ordinary skill in the art that the client software can be any of those mentioned herein or an equivalent. Further, it will be appreciated by one of ordinary skill in the art that in accordance with the present invention, the interface capabilities of the client software can also be designed into client hardware of a messaging client. Each messaging client **26** of the plurality of messaging clients **12** further includes a client identifier **27**. For example, the first messaging client **14** includes a first client identifier **15** and the second messaging client **20** includes a second client identifier **21**. The client identifier **27** of the messaging client **26** is a unique identification within the messaging communication system **10** for directing messages to a particular messaging client. For example, the client identifier **27** can be an address of a mobile device or an IP address and number of the port of a fixed network

device. To communicate within at least one of the plurality of messaging sessions **24** the messaging client **26** establishes a communication connection **28**. For example, the first messaging client **14** establishes a first communication connection **16** for communication within at least one of the plurality of messaging sessions **24**. Similarly, the second messaging client **20** establishes a second communication connection **22** for communication within at least one of the plurality of messaging sessions **24**. It will be appreciated by one of ordinary skill in the art that the communication connection **28**, the first communication connection **16**, and the second communication connection **22** can be a physical connection, or alternatively can be a logical connection where the act of connecting and disconnecting is a logical one. Each messaging client **26** of the plurality of messaging clients **12** is operated by at least one account user **30**. The account user **30** is an individual who uses one or more messaging clients to communicate with other account users within the plurality of messaging sessions **24**. It will be appreciated by one of ordinary skill in the art that the account user **30** can communicate using one or more messaging clients. For example, a first account user **29** can establish communication within the plurality of messaging sessions **24** using the first messaging client **14**, and, in accordance with the present invention, also using the second messaging client **20**.

Each messaging client **26** preferably includes a plurality of client data **25**. The plurality of client data **25** includes data associated with the messaging client **26** and data associated with each messaging session for which the messaging client **26** is currently participating, has participated in, or plans to participate in. The plurality of client data **25** can be divided up into one or more client data portions **18** as illustrated in FIG. **2**. The first messaging client **14** includes a first client data **17** and the second messaging client **20** includes a second client data **23**. FIG. **2** illustrates the plurality of client data **25** included within the messaging client **26** of FIG. **1**. It will be appreciated by one of ordinary skill in the art that the plurality of client data **25** as illustrated in FIG. **2** can be the first client data **17** or the second client data **23**. As illustrated, the plurality of client data **25** preferably includes a client version identifier (not shown), an account identifier **31**, a server identifier **32**, an authentication key **33**, a plurality of contact data **34**, a plurality of user preferences **35**, and a plurality of session data **36**. It will be appreciated by one of ordinary skill in the art that the plurality of client data **25** can include any of the client data mentioned herein or an equivalent.

The client version identifier is preferably the name and version or other similar indication of the messaging client being used. The account identifier **31** is preferably a user name or other identification of the account user **30** currently using the messaging client **26**. In an embodiment of the present invention in which a message server is utilized to manage the plurality of messaging sessions **24**, the server identifier **32** identifies the message server. For example, the server identifier **32** can be a wireless address, an IP (internet protocol) address, or an IP address accompanied by a number of the port assigned to the message server. The authentication key **33** preferably includes a code that is used to authenticate the account user **30** to the messaging communication system **10**. For example, the authentication key **33** could be derived from a password known only to the account user **30** and the messaging communication system **10**. The plurality of contact data **34** is a listing of information relating to the various account users in which the account user **30** currently using the messaging client **26** communicates, plans to communicate, or has communicated with in the past. For example, the plurality of contact data **34** can be a "buddy list" for the account user **30**. The plurality of contact data **34** preferably includes a plurality of account information **37** for each of a plurality of accounts. For example, the plurality of account information **37** for an Nth account can include an Nth account identifier **38** and further can include an Nth account contact information **39** associated with the Nth account identifier **38**. The Nth account contact information **39**, for example, can include Nth account user presence, Nth account user availability, Nth account phone number, Nth account mailing address, or Nth account user preferred communication means. It will be appreciated by one of ordinary skill in the art that the Nth account contact information can be any of the contact information mentioned herein or an equivalent. The plurality of account information **37** can further include, for example, billing information, favorite topics, associates, group lists, age, obscenity rating, and optional services. It will be appreciated by one of ordinary skill in the art that the plurality of account information **37** can include any of the information mentioned herein or an equivalent. In one embodiment of the present invention, each of the plurality of messaging clients **12** of FIG. **1** operates using at least one account. Further, each account user can have one or more accounts. For example, the account user **30** can have a business account and a personal account both operated using the messaging client **26**.

The plurality of user preferences **35** defines certain attributes settable by the account user **30** for communicating within the plurality of messaging sessions **24** using the messaging client **26**. The plurality of user preferences **35**, for example, can include text font

attributes, filter settings, blocking settings, screen names per account identifier, alert settings per screen name, buddy list groups, electronic mailboxes, electronic voice mail, and parental control settings. It will be appreciated by one of ordinary skill in the art that the plurality of user preferences **35**, in accordance with the present invention, can include any of those preferences mentioned herein or an equivalent.

The plurality of session data **36** included within the plurality of client data **25** contains information relating to each of the plurality of messaging sessions **24** for which the account user **30** is currently participating, has previously participated, or plans to participate in, using the messaging client **26**. FIG. **3** illustrates a preferred embodiment of the plurality of session data **36** in accordance with the present invention. As illustrated in FIG. **3**, for each messaging session **40**, the plurality of session data **36** includes a session identifier **41**, a session priority **42**, a plurality of session preferences **43**, a plurality of session participants **44**, and a session history **45**. It will be appreciated by one of ordinary skill in the art that the plurality of session data **36**, in accordance with the present invention, can include any of the session data mentioned herein or an equivalent.

Preferably, the session identifier **41** identifies the messaging session **40** of the plurality of messaging sessions **24**. In one embodiment, the messaging session **40** is assigned the session priority **42**. The session priority **42** determines or identifies the priority of the messaging session **40** within the plurality of messaging sessions **24** for which the account user **30** is currently participating. The session priority **42** can be set manually by the account user **30** or through a predetermined algorithm in the messaging client **26** taking into account the various characteristics of the messaging session **40** and the messaging client **26**. The session priority **42** can for example, specify a stacking order (e.g.: order of display window layering for viewing) of the messaging windows within the messaging client **26**. Alternatively, when the messaging client **26** operates within a messaging device capable of only displaying one session at a time, the session priority **42** can identify the session to display at any given point in time.

The plurality of session preferences **43** defines certain attributes settable by the account user **30** for communicating within the messaging session **40** using the messaging client **26**. The plurality of session preferences **43**, for example, can include text font attributes, filter settings, blocking settings, alert settings, screen names, buddy list groups, electronic mailboxes, parental control settings, an alert option such as alert on receipt of a new real time message or no alert on receipt of a new real time message, guaranteed or non-

guaranteed delivery, timeout setting for participation in the messaging session **40**, and number of real time messages to retain in the session history **45** and to display. It will be appreciated by one of ordinary skill in the art that the plurality of session preferences **43**, in accordance with the present invention, can include any of the session preferences mentioned herein or an equivalent. In one embodiment, the plurality of session preferences **43** includes a session timer. (not shown) The session timer is a preset time period upon which the messaging client **26** is active within the messaging session **40**. The plurality of session preferences **43** in one embodiment is transferred to the messaging client **26** when the messaging session **40** is activated. Alternatively, the account user **30** manually can set the plurality of session preferences **43**. Alternatively, a default set of session preferences can be preprogrammed in the messaging client **26** to enhance the efficiency of managing the participation in the plurality of messaging sessions **24**. The plurality of session participants **44** includes each account user participating in the messaging session **40** along with the account identifier for each participating account user.

FIG. **4** illustrates a preferred embodiment of the session history **45** of FIG. **3** in accordance with the present invention. As illustrated in FIG. **4**, the session history **45** preferably includes a plurality of session messages **61** in which each session message **46** is associated with a plurality of message information including an account identifier **47** for an associated message originator such as the account user **30**. The associated originator for example is one of the plurality of session participants **44**. Each session message **46** further can be associated with a message timestamp **48** identifying the time that the session message **46** was entered into the messaging session **40** by the message originator. The session history **45** is further composed of at least one session portion **49**. Each session portion **49** comprises at least one session message **46** and associated information. It will be appreciated by one of ordinary skill in the art that although the session portion **49** is illustrated as a portion of the session history **45**, alternatively, in accordance with the present invention, the session portion **49** can be any portion of the plurality of session data **36**.

FIG. **5** is an electronic block diagram of one embodiment of a messaging device in which a messaging client of FIG. **1** operates. Specifically, FIG. **5** illustrates a fixed network device **50**. The fixed network device **50** can operate for example on a local area network (LAN) or a wide area network (WAN) or a combination of both. The fixed network device **50** can be one of a plurality of spatially co-located computers which are typically located within a room, building or campus of buildings and are sharing common resources and

communicating with each other on a computer network in a manner well known to one of ordinary skill in the art. Typical resources shared are files on a file server, printers on a print server, and electronic message (email) services on an email server. The fixed network device **50** can operate on a network that uses a physical network such as ARCNET, Ethernet, Token-ring, Local Talk or other network media to connect the computers, which represent wired network nodes into the network. The fixed network device **50** can operate on a LAN that employs any one of a number of networking protocols, such as TCP/IP (Transmission Control Protocol/Internet Protocol), AppleTalk™, IPX/SPX (Inter-Packet Exchange/Sequential Packet Exchange), Net BIOS (Network Basic Input Output System) or any other packet structures to enable the communication among the devices and/or between the devices and the shared resources. Further the fixed network device **50** can operate on a WAN that uses a different physical network media such as X.25, Frame Relay, ISDN, Modem dial-up or other media to connect other computers or other local area networks. In the following description, the term "fixed network device" includes any of the messaging devices operating as described above or an equivalent.

As illustrated, the fixed network device **50** comprises a timing clock **52**, a central processing unit **53**, an electronic memory preferably in the form of a random access memory (RAM) **54** and/or a read only memory (ROM) **55**, and a mass storage element (e.g., a disk drive or the like) **56**. In one embodiment, the fixed network device **50** includes a memory interconnect **57** for operatively connecting a memory storage device **58** to the fixed network device **50**. The memory interconnect **57** can, for example, comprise a structure for physically engaging external contacts on the memory storage device **58** so that the memory storage device **58** is directly connected to the fixed network device **50**. It will be appreciated by one of ordinary skill in the art that the memory interconnect **57** can also be a wireless connection such as an infrared, Bluetooth or radio frequency interface. When the memory interconnect **57** is connected to the memory storage device **58**, the fixed network device **50** can access a plurality of memory information such as the plurality of client data **25** from the memory storage device **58**.

The fixed network device **50** further preferably comprises a display driver **59**, a general I/O interface or data port **60**, and a user interface port **62** that accommodates a user interface **64** including any number of input means for general information entry. In the preferred embodiment, the user interface **64**, e.g., a keyboard **66**, a "mouse," **68**, a pen or puck activated tablet (not shown), a trackball **70**, an audio activated command recognition

processor **72**, or the like, allows a device user to enter and manipulate information using a user input **88**. After information is entered, it may be communicated to a wired messaging system **89** via a conventional modem **74** or the like. Preferably, the fixed network device **50** also includes an Ethernet connection **76** for communicating to the wired messaging system **89** or for communicating through either a conventional cable modem **78** to a cable headend, or a (Digital Subscriber Line) DSL connection **80** to the wired messaging system **89**. The fixed network device **50** can be changed from an active to an inactive state or from an inactive state to an active state through the user input **88** to the power circuit **82**. The power circuit **82** can be operated manually via the user input **88** directly to the power circuit **82**, the user input **88** to the user interface **64,** or alternatively automatically via the programming of the CPU **53**.

In a preferred embodiment of the present invention, the fixed network device **50** of FIG. **5** includes a fixed messaging client **84**. It will be appreciated by one of ordinary skill in the art that the fixed messaging client **84** can be the first messaging client **14**, the second messaging client **20**, or any other of the plurality of messaging clients **12** of FIG. **1**. The fixed network device **50** performs messaging functions within the fixed messaging client **84** using a plurality of messages stored in the electronic memory of the fixed network device **50**. The fixed messaging client **84** may be hard coded or programmed into the fixed network device **50** during manufacturing, may be programmed over-the-air upon customer subscription, or may be a downloadable application. It will be appreciated that other programming methods can be utilized for programming the fixed messaging client **84** into the fixed network device **50**. It will be further appreciated by one of ordinary skill in the art that the fixed messaging client **84** can be hardware circuitry within the fixed network device **50**.

Preferably the fixed messaging client **84** automatically updates a CRT **86** when a new message has been sent or received by sending a command to the display driver **59**. This allows the message to be updated while the device user is reading it without disturbing the CRT **86**. The fixed messaging client **84** uses the plurality of client data **25** stored in the electronic memory or stored in the memory storage device **58** to perform functions relating to various received and/or sent messages. It will be appreciated by one of ordinary skill in the art that fixed networked devices having software-programming capabilities may include client data that is specialized and personalized such as the plurality of user preferences **35** including display options and screens for each account user, or similarly may include the

plurality of session preferences **43** for each messaging session **40.** Alternatively, fixed networked devices that do not include software-programming capabilities may include the plurality of client data **25** including the plurality of user preferences **35** that are standard, pre-defined display options and screens for the plurality of messaging sessions **24.**

The plurality of user preferences **35** of the plurality of client data **25** used by the fixed messaging client **84** further includes various alert options. In one embodiment, the fixed messaging client **84** notifies the CPU **53** to send a command to an alert circuit (not shown) when a new message is received. In another embodiment, the fixed messaging client **84** notifies the CPU **53** to send a command to the alert circuit when an unread message is to be deleted from the memory. Alternatively, no alert may be sent when a new message is received and stored in the memory. It will be appreciated by one of ordinary skill in the art that other alerting schemes are within the scope of the present invention. Further, the CPU **53**, in response to the user input **88** to the user interface **64** through to the user interface port **62**, such as a device user depressing a button or series of buttons, or in response to receipt of a message initiates an input signal to the fixed messaging client **84**. The fixed messaging client **84**, in response to the input signal, accesses a plurality of messages stored in the electronic memory for use in operation of the fixed messaging client **84**.

Preferably, the fixed messaging client **84** includes a client profile **85**. The client profile **85** includes information regarding the capabilities and limitations of the fixed messaging client **84** and also of the fixed network device **50**. For example, the client profile **85** can include indication of the media supported by the fixed messaging client **84** (e.g. audio, video), indication of which features are supported by the fixed messaging client **84**, device type, device display, device battery life, device battery capacity, device processing power, and access to alternate networks. It will be appreciated by one of ordinary skill in the art that the client profile **85** can include any of those mentioned above in any combination or an equivalent.

In accordance with the present invention, the fixed messaging client **84** includes software capability for transferring all or a portion of the plurality of client data **25** to one or more other messaging clients for use by the other messaging client to participate within one or more of the plurality of messaging sessions **24**. The fixed messaging client **84**, in accordance with the present invention, further includes software capability for receiving all or a portion of the plurality of client data **25** from at least one other messaging client to participate within one or more of the plurality of messaging sessions **24**. As illustrated in

FIG. **5**, the software capability for transferring and/or the capability for receiving the plurality of client data **25** can be incorporated into the fixed messaging client **84**, or alternatively can be contained within a separate data transfer application **83**. The data transfer application **83**, for example can be a third party software add-on that is compatible with existing messaging software applications (e.g. the fixed messaging client **84**) already programmed into the fixed network device **50**. Maintaining the data transfer software on a separate data transfer application **83** minimizes incorporation timeframes and also the cost of upgrading the fixed network device **50** to include this feature.

FIG. **6** is an electronic block diagram of one embodiment of a messaging device in which a messaging client of FIG. **1** operates. Specifically, FIG. **6** illustrates a mobile device **90**. It will be appreciated by one of ordinary skill in the art that the mobile device **90** in accordance with the present invention, can be a mobile cellular telephone, a mobile radio data terminal, a mobile cellular telephone having an attached data terminal, or a two way pager, such as the "Pagewriter 2000X" manufactured by Motorola Inc. of Schaumburg, Illinois. In the following description, the term "mobile device" refers to any of the messaging devices mentioned above or an equivalent.

As illustrated in FIG. **6**, the mobile device **90** includes a first antenna **92**, a second antenna **94**, a receiver **96**, a transmitter **98**, a clock **100**, a processor **102**, a device memory **104**, a device memory interconnect **105**, a device alert circuit **106**, a device display **108**, a device user interface **110** and a mobile messaging client **112**.

The first antenna **92** intercepts transmitted signals from a wireless messaging system **114**. It will be appreciated by one of ordinary skill in the art that the wireless messaging system **114**, in accordance with the present invention, can function utilizing any wireless RF channel, for example, a one or two-way pager channel, a mobile cellular telephone channel, or a mobile radio channel. Similarly, it will be appreciated by one of ordinary skill in the art that the wireless messaging system **114** can function utilizing other types of communication channels such as infrared channels. In the following description, the term "wireless messaging system" refers to any of the wireless messaging systems mentioned above or an equivalent.

The first antenna **92** is coupled to the receiver **96**, which employs conventional demodulation techniques for receiving the communication signals transmitted by the wireless messaging system **114**. Coupled to the receiver **96**, is the processor **102** utilizing conventional signal-processing techniques for processing received messages. Preferably, the

processor **102** is similar to the MC68328 micro-controller manufactured by Motorola, Inc. of Schaumburg, Illinois. It will be appreciated by one of ordinary skill in the art that other similar processors can be utilized for the processor **102**, and that additional processors of the same or alternative type can be utilized as required to handle the processing requirements of the processor **102**. The processor **102** decodes an address in the demodulated data of the received message, compares the decoded address with one or more addresses **115** stored in an address memory **116** of the device memory **104**; and when a match is detected, proceeds to process the remaining portion of the received message.

To perform the necessary functions of the mobile device **90**, the processor **102** is coupled to the device memory **104**, which preferably includes a random access memory (RAM), a read-only memory (ROM), and an electrically erasable programmable read-only memory (EEPROM)(not shown). The device memory **104** includes the address memory **116**, a message memory **118**, and a client data memory **120**.

Once the processor **102** has processed a received message, it stores the decoded message in the message memory **118** of the device memory **104**. It will be appreciated by one of ordinary skill in the art that the message memory **118**, in accordance with the present invention, can be a voicemail box or a group of memory locations in a data storage device. In the following description, the term "message memory" refers to any of the memory means mentioned above or an equivalent. Preferably, when the received message is a message for participation in one of the plurality of messaging sessions **24**, for example the session message **46** of the messaging session **40**, the processor **102** stores the decoded message in the client data memory **120**.

In one embodiment, the mobile device **90** includes the device memory interconnect **105** for operatively connecting the memory storage device **58** to the mobile device **90**. The device memory interconnect **105** can, for example, comprise a structure for physically engaging external contacts on the memory storage device **58** so that the memory storage device **58** is directly connected to the mobile device **90**. It will be appreciated by one of ordinary skill in the art that the device memory interconnect **105** can also be a wireless connection such as an infrared, Bluetooth or radio frequency interface. When the device memory interconnect **105** is connected to the memory storage device **58**, the mobile device **90** can access a plurality of memory information such as the plurality of client data **25** from the memory storage device **58**.

The client data memory **120** includes the plurality of client data **25** as described previously in FIGs. **2** to **4**. The client data memory **120** includes a memory slot **122** for each messaging session **40** in which the mobile device **90** has subscribed. The memory slot **122**, in accordance with the present invention, includes the plurality of session data **36** as illustrated in FIG. **2**. The plurality of session messages **61** associated with the messaging session **40** is stored together in chronological order in the memory slot **122** similar to the session history **45** of FIG. **4**. The memory slot **122** is allocated a fixed amount of memory for storing associated plurality of session messages **61**. The memory slot **122** holds multiple session messages in a single message memory slot. Any session message **46** received for the messaging session **40** along with its associated session message information is appended at the end of the plurality of session messages **61** already in the memory slot **122**. If the amount of allocated memory for the memory slot **122** is exceeded, the older session messages are deleted. It will be appreciated by one of ordinary skill in the art that, in accordance with the present invention, the client data memory **120** and associated operation herein described, in accordance with the present invention, can be included in the fixed network device **50** of FIG. **5**, a cable box **136** of FIG. **7** or any other messaging device in which the messaging client **26** operates.

Upon receipt and processing of a message, the processor **102** preferably generates a command signal to the device alert circuit **106** as a notification that the message has been received and stored. The device alert circuit **106** can include a speaker (not shown) with associated speaker drive circuitry capable of playing melodies and other audible alerts, a vibrator (not shown) with associated vibrator drive circuitry capable of producing a physical vibration, or one or more LEDs (not shown) with associated LED drive circuitry capable of producing a visual alert. It will be appreciated by one of ordinary skill in the art that other similar alerting means as well as any combination of the audible, vibratory, and visual alert outputs described can be used for the device alert circuit **106**.

Upon receipt and processing of a message, the processor **102** preferably also generates a command signal to the device display **108** to generate a visual notification of the receipt and storage of the message. When the device display **108** receives the command signal from the processor **102** that the message has been received and stored in the device memory **104**, a message indication is displayed. The message indication, for example can be the activation of one of a plurality of message icons on the device display **108**. The device display **108** can be, for example, a liquid crystal display utilized to display text. It will be

appreciated by one of ordinary skill in the art that other similar displays such as cathode ray tube displays can be utilized for the device display **108**.

The mobile device **90** preferably further includes the clock **100**. The clock **100** provides timing for the processor **102**. The clock **100** can include the current time for use in the operation of the mobile device **90**. The clock **100** also provides a source for timing of feature enhancements such as active and inactive periods of operation or periods of alerting.

In a preferred embodiment, the mobile device **90** includes the mobile messaging client **112**. It will be appreciated by one of ordinary skill in the art that the mobile messaging client **112** can be the first messaging client **14**, the second messaging client **20**, or any other of the plurality of messaging clients **12** of FIG. **1**. The mobile messaging client **112** performs messaging functions within the mobile device **90** using the plurality of client data **25** stored in the client data memory **120**. The mobile messaging client **112** may be hard coded or programmed into the mobile device **90** during manufacturing, may be programmed over-the-air upon customer subscription, or may be a downloadable application. It will be appreciated that other programming methods can be utilized for programming the mobile messaging client **112** into the mobile device **90**. It will be further appreciated by one of ordinary skill in the art that the mobile messaging client **112** can be hardware circuitry within the mobile device **90**. Preferably the mobile messaging client **112** automatically updates the device display **108** when a new session message has been sent or received. This allows the session history **45** to be updated while the account user **30** is reading it without disturbing the device display **108**. The mobile messaging client **112** uses the plurality of client data **25** stored in the electronic memory or stored in the memory storage device **58** to perform functions relating to various received and/or sent session messages. It will be appreciated by one of ordinary skill in the art that mobile devices having software-programming capabilities may include specialized and personalized display options and screens for each messaging session **40**. Alternatively, mobile devices that do not include software-programming capabilities may include standard, pre-defined display options and screens for the plurality of messaging sessions **24**. In accordance with the present invention, the display options for the plurality of messaging sessions **24** in which the messaging client **26** within the mobile device **90** is participating can be included in the plurality of session preferences **43** for each messaging session **40**or alternately, the display options can be stored independently within the plurality of user preferences **35** of the plurality of client data **25**

The mobile messaging client **112** further operates using various alert options. In one embodiment, the mobile messaging client **112** notifies the processor **102** to send a command to the device alert circuit **106** when a new session message is added to the memory slot **122** of the client data memory **120** for the messaging session **40**. In another embodiment, the mobile messaging client **112** notifies the processor **102** to send a command to the device alert circuit **106** when an unread session message is to be deleted from the memory slot **122**. Alternatively, no alert may be sent when a new session message is received and stored in the client data memory **120**. It will be appreciated by one of ordinary skill in the art that other alerting schemes are within the scope of the present invention. In accordance with the present invention, the alert options for the plurality of messaging sessions **24** in which the messaging client **26** within the mobile device **90** is participating can be included in the plurality of session preferences **43** for each messaging session **40** or alternately, the alert options can be stored independently within the plurality of user preferences **35** of the plurality of client data **25**.

In accordance with the present invention, the mobile messaging client **112** includes software capability for transferring all or a portion of the plurality of client data **25** to at least one other messaging client for use by the other messaging client to participate within one or more of the plurality of messaging sessions **24**. The mobile messaging client **112**, in accordance with the present invention, further includes software capability for receiving all or a portion of the plurality of client data **25** from another messaging client to participate within one or more of the plurality of messaging sessions **24**. As illustrated in FIG. **6**, the software capability for transferring and receiving client data can be incorporated into the mobile messaging client **112** or alternatively contained within a separate data transfer application **83**. The data transfer application **83**, for example can be a third party software add-on that is compatible with existing messaging software applications (e.g. the mobile messaging client **112**) already programmed into the mobile device **90**. Maintaining the data transfer software on a separate data transfer application **83** minimizes incorporation timeframes and also the cost of upgrading a messaging device to include this feature.

Preferably, the device user interface **110** is coupled to the processor **102**. The device user interface **110** can be one or more buttons used to generate a button press, a series of button presses, a voice response from the device user, or some other similar method of manual response initiated by the device user (such as the account user **30**) of the mobile device **90**. The processor **102**, in response to the device user interface **110**, such as a device

user depressing a button or series of buttons, or in response to receipt of a session message, initiates an input signal to the mobile messaging client **112**. The mobile messaging client **112**, in response to the user input signal, accesses the plurality of session messages **61** stored in the client data memory **120** for use in operation of the mobile messaging client **112**.

Preferably, the mobile messaging client **112** includes the client profile **85**. The client profile **85** includes information regarding the capabilities and limitations of the mobile messaging client **112** and also of the mobile device **90**. For example, the client profile **85** can include indication of the media supported by the mobile messaging client **112** (e.g. audio, video), indication of which features are supported by the mobile messaging client **112**, device type, device protocol usage, device display, device battery life, device battery capacity, device processing power, and access to alternate networks. It will be appreciated by one of ordinary skill in the art that the client profile **85** can include any of those mentioned above in any combination or an equivalent.

The transmitter **98** is coupled to the processor **102** and is responsive to commands from the processor **102**. When the transmitter **98** receives a command from the processor **102**, the transmitter **98** sends a signal via the second antenna **94** to the wireless messaging system **114**.

In an alternative embodiment (not shown), the mobile device **90** includes one antenna performing the functionality of the first antenna **92** and the second antenna **94**. Further, the mobile device **90** alternatively includes a transceiver circuit performing the functionality of the receiver **96** and the transmitter **98**. It will be appreciated by one of ordinary skill in the art that other similar electronic block diagrams of the same or alternate type can be utilized for the mobile device **90** to handle the requirements of the mobile device **90**.

The mobile device **90** can be changed from an active state to an inactive state or from an inactive state to an active state through a user input to the power circuit **134**. The power circuit **134** can be operated manually via the user input to the power circuit **134**, the user input to the user interface **110**, or alternatively automatically via the programming of the processor **102**.

FIG. **7** is an electronic block diagram of one embodiment of a messaging device in which a messaging client of FIG. **1** operates. Specifically, FIG. **7** illustrates an interactive broadcast receiver such as the cable box **136**. The cable box **136** preferably allows network operators to deploy a wide range of interactive television broadcast services and applications

on their networks. Further the cable box **136** preferably offers cable operators a combined, all-in-one, hardware and software solution for deploying interactive television services on their networks, thereby creating the ability for real time electronic message communication using television sets and networks.

As illustrated in FIG. **7**, the cable box **136** preferably includes a controller **138** for controlling the operation of the cable box **136**. Preferably, the controller **138** is similar to the MC68328 micro-controller manufactured by Motorola, Inc. of Schaumburg, Illinois. It will be appreciated by one of ordinary skill in the art that other similar processors can be utilized for the controller **138**, and that additional processors of the same or alternative type can be utilized as required to handle the processing requirements of the controller **138**. Preferably, the controller **138** is programmed to function with the cable messaging client **140.** The cable messaging client **140**, in accordance with the present invention, operates similarly to the fixed messaging client **84** of FIG. **5** and the mobile messaging client **112** of FIG. **6** as described above. It will be appreciated by one of ordinary skill in the art that the cable messaging client **140** illustrated in FIG. **7** can be the first messaging client **14**, the second messaging client **20**, or any other of the plurality of messaging clients **12** of FIG. **1**.

In accordance with the present invention, the cable messaging client **140** includes software capability for transferring all or a portion of the plurality of client data **25** to at least one other messaging client for use by the other messaging client to participate within one or more of the plurality of messaging sessions **24**. The cable messaging client **140** further includes software capability for receiving all or a portion of the plurality of client data **25** from another messaging client to participate within one or more of the plurality of messaging sessions **24**. As illustrated in FIG. **7**, the software capability for transferring and receiving client data can be incorporated into the cable messaging client **140** or alternatively contained within a separate data transfer application **83**. The data transfer application **83**, for example can be a third party software add-on that is compatible with existing messaging software applications (e.g. the cable messaging client **140**) already programmed into the cable box **136**. Maintaining the data transfer software on a separate data transfer application **83** minimizes incorporation timeframes and also the cost of upgrading a device to include this feature.

Preferably, the cable messaging client **140** includes the client profile **85**. The client profile **85** includes information regarding the capabilities and limitations of the cable messaging client **140** and of the cable box **136**. For example, the client profile **85** can

include indication of the media supported by the cable messaging client **140** (e.g. audio, video), indication of which features are supported by the cable messaging client **140**, device type, device protocol usage, device display, device battery life, device battery capacity, device processing power, and access to alternate networks. It will be appreciated by one of ordinary skill in the art that the client profile **85** can include any of those mentioned above in any combination or an equivalent.

The cable box **136** further includes an up/down converter **142** coupled to the controller **138** for communicating with a cable headend. To perform the necessary functions of the cable box **136**, the controller **138** is further coupled to a cable box memory **144**, which preferably includes a cable box random access memory (RAM) **146**, a cable box read-only memory (ROM) **148**, and an electrically erasable programmable read-only memory (EEPROM)(not shown). The cable box memory **144** of the cable box **136** preferably includes the client data memory **120** as previously described and illustrated in FIG. **6**.

In one embodiment, the cable box **136** includes a cable box memory interconnect **149** for operatively connecting the memory storage device **58** to the cable box **136**. The cable box memory interconnect **149** can, for example, comprise a structure for physically engaging external contacts on the memory storage device **58** so that the memory storage device **58** is directly connected to the cable box **136**. It will be appreciated by one of ordinary skill in the art that the cable box memory interconnect **149** can also be a wireless connection such as an infrared, Bluetooth or radio frequency interface. When cable box memory interconnect **149** is connected to the memory storage device **58**, the cable box **136** can access a plurality of memory information such as the plurality of client data **25** from the memory storage device **58**.

Further coupled to the controller **138** is a first cable box I/O **150** for driving a remote control transceiver **152** and further for driving a radio frequency transceiver **154** connected to a cable box antenna **156**. A second cable box I/O **158** for inputs from a user input via a cable box user interface **160** is further coupled to the controller **138**. Also coupled to the controller **138** are an audio driver **162** and a radio frequency/video driver **164** for communicating with a television **166**.

The cable box **136** can be changed from an active state to an inactive state or from an inactive state to an active state through a user input to the cable box power circuit **168**. The cable box power circuit **168** can be operated manually via the user input to the cable box

power circuit **168**, the user input to the cable box user interface **160** or alternatively automatically via the programming of the controller **138**.

FIG. **8** is an electronic block diagram of an alternate embodiment of a messaging communication system **170** in accordance with the present invention. The messaging communication system **170** includes the plurality of messaging clients **12** and a message server **172**.

The message server **172** manages the communication of a plurality of electronic messages among the plurality of messaging clients **12**, facilitating substantially real time communication among the plurality of messaging clients **12** within the messaging communication system **170**. The message server **172** provides numerous services to manage the plurality of messaging sessions **24**. The message server **172** also offers various options to the plurality of session participants **44** to reduce cost or enhance the features of the plurality of messaging sessions **24**.

Each messaging client **26** of the plurality of messaging clients **12** such as the first messaging client **14** and the second messaging client **20** includes client software to interface within the messaging communication system **10**. It will be appreciated by one of ordinary skill in the art that in accordance with the present invention, the interface capabilities of the client software can also be designed into client hardware of a messaging client. Each messaging client **26** of the plurality of messaging clients **12** further includes the client identifier **27**. For example, the first messaging client **14** includes the first client identifier **15** and the second messaging client **20** includes the second client identifier **21**. The client identifier **27** of the messaging client **26** is a unique identification within the messaging communication system **170** for providing individualized messages to be directed to a particular messaging client. For example, the client identifier **27** can be an address of the mobile device **90** or an IP address and number of the port of the fixed network device **50**. To communicate within the messaging communication system **170**, the messaging client **26** establishes the communication connection **28** via the message server **172**. For example, the first messaging client **14** establishes the first communication connection **16** via the message server **172** for communication within at least one of the plurality of messaging sessions **24**. Similarly, the second messaging client **20** establishes the second communication connection **22** via the message server **172** for communication within at least one of the plurality of messaging sessions **24**. It will be appreciated by one of ordinary skill in the art that the communication connection **28**, the first communication connection **16**, and the second

communication connection **22** can be a physical connection, or alternatively can be a logical connection where the act of connecting and disconnecting is a logical one. Each of the plurality of messaging clients **14** belongs to the account user **30**. The account user **30** is an individual who uses one or more of the plurality of messaging clients **12** to communicate with other account users within the plurality of messaging sessions **24**. It will be appreciated by one of ordinary skill in the art that the account user **30** can communicate using one or more of the plurality of messaging clients **12**. For example, the first account user **29** can establish communication within the plurality of messaging sessions **24** using the first messaging client **14**, and, in accordance with the present invention, also using the second messaging client **20**.

Each messaging client **26** preferably includes the plurality of client data **25**. The plurality of client data **25** includes data associated with the messaging client **26** and data associated with each messaging session for which the messaging client **26** is currently participating, has participated in, or plans to participate in. The first messaging client **14** includes the first client data **17** and the second messaging client **20** includes the second client data **23**.

The message server **172** includes a server processor **174** and a server memory **176**. The server processor **174** utilizes conventional signal processing techniques for processing received electronic messages. Preferably, the server processor **174** is similar to the MC68328 micro-controller manufactured by Motorola, Inc. of Schaumburg, Illinois. It will be appreciated that other similar processors can be utilized for the server processor **174**, and that additional processors of the same or alternative type can be added as required to handle the processing requirements of the server processor **174**.

To perform the necessary functions of the message server **172**, the server processor **174** is coupled to the server memory **176**, which preferably includes a random access memory (RAM), a read-only memory (ROM), an electrically erasable programmable read-only memory (EEPROM), and/or a magnetic storage memory (for example a hard drive). The server memory **174** preferably includes a messaging sessions data memory **178**, a messaging clients data memory **180**, and a server data memory **182**. The messaging sessions data memory **178** stores the plurality of session data for all messaging sessions for which the message server **172** is managing. The plurality of session data stored for each messaging session for which the message server **172** is managing is similar to the plurality of session data **36** as illustrated in FIGs. **3** and **4** and described previously. The messaging clients data

memory **178** stores the plurality of client data **25** for each of the messaging clients **26** that have established the communication connection **28** with the message server **172**. For example, the plurality of client data **25** can include the type of device being utilized by each messaging client **26**, the account user **30** utilizing each messaging client **26,** the plurality of user preferences **35** for each messaging client **26**, and the messaging sessions for which each messaging client **26** is participating. It will be appreciated by one of ordinary skill in the art that the messaging client data memory **178** can store any of the plurality of client data **25** mentioned herein or an equivalent. The server memory **176** further includes the server data memory **182**. The server data memory **182** preferably includes a server identifier **184** for the message server **172**. The server identifier **184** can be, for example, a unique selective call address in the wireless messaging system **114**. Alternatively, the server identifier **184** can be an IP address, or an IP address and associated number of the port assigned to the message server **172** of the wired messaging system **89**. It will be appreciated by one of ordinary skill in the art that the server identifier **184** can be one mentioned herein or an equivalent. The server identifier **184** enables the communication between the plurality of messaging clients **12** and the message server **172** using the communication connections such as the communication connection **28**, the first communication connection **16**, and the second communication connection **22**. The server data memory **182** also preferably includes a server profile **186**. The server profile **186** includes information regarding the capabilities of the message server **176**. For example, the server profile **186** can include server processing power, server client capability, server messaging session capability, and server access to secondary networks. It will be appreciated by one of ordinary skill in the art that the server profile **186** can include any of those mentioned above in any combination or an equivalent.

FIG. **9** is an electronic block diagram of one embodiment of the messaging communication system **10**, **170** of FIGs. **1** and **8** respectively. Specifically, FIG. **9** illustrates an embodiment of the present invention in which the messaging communication system **10**, **170** is the wireless messaging system **114** of FIG. **6**.

The wireless messaging system **114**, as illustrated in FIG. **9** includes a message input device for initiating messages into the wireless messaging system **114**. The message input device can be, for example, a telephone **204**, a computer **206**, a desktop messaging unit **208**, or the message server **172** connected through a conventional public switched telephone network (PSTN) **210** through a plurality of telephone links **212** to a wireless system

controller **214**. The telephone links **212**, for example, can be a plurality of twisted wire pairs, a fiber optic cable, or a multiplexed trunk line.

The wireless system controller **214** is coupled to and oversees the operation of at least one radio frequency (RF) transmitter **216** and at least one radio frequency (RF) receiver **218** through one or more communication links **220**. The communication links **220** typically are twisted pair telephone wires, and additionally can include radio frequency (RF), microwave, or other communication links. The RF transmitter **216** and the RF receiver **218** typically are used with message store and forward stations that encode and decode inbound and outbound messages into formats that are compatible with landline message switched computers and personal radio addressing requirements, such as cellular messages, short messaging service, or paging protocols. The wireless system controller **214** can also function to encode and decode wireless messages that are transmitted to or received by the RF transmitter **216** or the RF receiver **218**. Telephony signals are typically transmitted to and received from the wireless system controller **214** by telephone sets such as the telephone **204** or a mobile device. The wireless system controller **214** encodes and schedules outbound messages such as a downlink message **222**. The wireless system controller **214** then transmits the encoded outbound messages through the RF transmitter **216** via a transmit antenna **224** to a plurality of mobile devices **226** such as the mobile device **90** of FIG. **6** on at least one outbound radio frequency (RF) channel **234**. The plurality of mobile devices **226**, for example, includes a first mobile device **228**, a second mobile device **230**, and a third mobile device **232** each communicating through a wireless connection such as the outbound RF channel **234** and an inbound RF channel **240**. The downlink message **222** can be, for example, a data message or a voice call such as the session message **46**. Similarly, the wireless system controller **214** receives and decodes inbound messages such as an uplink message **236** received by the RF receiver **218** via a receive antenna **238** on at least one inbound radio frequency (RF) channel **240** from one of the plurality of mobile devices **226**. The uplink message **236** can be, for example, a data message, a reply to a data message, a response message based on at least one data message, a voice call, or a reply to a voice call, such as the session message **46**.

Each of the plurality of mobile devices **226** assigned for use in the wireless messaging system **114** has an address or identity assigned thereto which is a unique selective call address in the wireless messaging system **114**. For example, the first mobile device **228** has a first address **242**, the second mobile device **230** has a second address **244**, and the third mobile device **232** has a third address **246**. It will be appreciated by one of ordinary skill in

the art that other mobile devices assigned for use in the wireless messaging system **114** have an address assigned thereto which is a unique selective call address in the wireless messaging system **114**. The address enables the transmission of the downlink message **222** from the wireless system controller **214** only to the mobile device having the address, and identifies the messages and responses received at the wireless system controller **214** from the mobile device with the address. In one embodiment, each of the plurality of mobile devices **226** also has a pin number assigned thereto, the pin number being associated with a telephone number within the PSTN **210**. A list of the assigned addresses and correlated telephone numbers for each of the plurality of mobile devices **226** is stored in the wireless system controller **214** in the form of a subscriber database **248**.

Preferably, at least one messaging client operates within a mobile device. For example, as illustrated in FIG. **9**, the first messaging client **14** operates within the first mobile device **228** and the second messaging client **20** operates within the second mobile device **230**. Similarly, a plurality of messaging clients can operate within the same mobile device. For example, a third messaging client **250** and a fourth messaging client **252** operate within the third mobile device **232**. It will be appreciated by one of ordinary skill in the art that, in accordance with the present invention, a mobile device can include no messaging client, one messaging client, or a plurality of messaging clients.

In one embodiment of the present invention, the message server **172** is coupled to the wireless system controller **214** of the wireless messaging system **114**. The message server **172** provides a means for real time electronic message communication with the plurality of mobile devices **226**. The message server **172**, for example, receives a request and can in response to such receipt, sends a response, both via the wireless system controller **214**. The wireless system controller **214** then routes the response to the requesting device which may be a message input device, such as the telephone **204**, the computer **206**, or the desktop messaging unit **208**, or alternatively may be an individual or one of the plurality of mobile devices **226**. In the following description, the term requester refers to any of the requesting devices mentioned above or an equivalent.

Preferably, the message server **172** includes a server address **254**, which is a unique selective call address in the wireless messaging system **114**. The server address **254** enables the transmission, via the inbound RF channel **240**, to the message server **172** of various real time electronic communication messages such as conversation service requests, subscription requests, conversation messages, availability settings, and other information. The message

server **172** similarly sends real time electronic communication messages such as sending an availability setting or the forwarding of a session message to the plurality of mobile devices **226** via the outbound RF channel **234**. Furthermore, the message server **172** can also have a pin number assigned thereto, the pin number being associated with a telephone number within the PSTN **210**. The server address **254** and correlated telephone number is stored in the in the subscriber database **248** of the wireless system controller **214**.

The coupling of the message server **172** to the wireless messaging system **114** enhances the operation of the wireless messaging system **114** by adding intelligence for multiple mobile devices to communicate in substantially real time. The message server **114** interactively manages the messaging traffic associated with the plurality of messaging sessions **24** in an efficient manner.

FIG. **10** is an electronic block diagram of one embodiment of the messaging communication system **10**, **170** of FIGs. **1** and **8** respectively. Specifically, FIG. **10** illustrates an embodiment of the present invention in which the messaging communication system **10**, **170** is the wired messaging system **89** of FIG. **5**. The wired messaging system **89**, for example, can include a LAN **256** (local area network), a WAN **258** (wide area network), or a combination of LAN **256** and WAN **258** networks. It will be appreciated that while only a single LAN **256** and a single WAN **258** are shown, multiple LAN **256** networks and/or WAN **258** networks can be interconnected in a manner well known to one of ordinary skill in the art for the transfer of electronic communication such as electronic mail (email), and real time electronic messaging (i.e.: instant messaging and chat messaging) including the plurality of session messages **61**.

The general function and operation of the LAN **256** is one of allowing spatially co-located computers which are typically located within a room, building or campus of buildings to communicate with each other and/or share common resources on a computer network in a manner well known to one of ordinary skill in the art. The spatially co-located computers are represented pictorially in FIG. **10** as a plurality of messaging devices, such as the fixed network device **50** of FIG. **5**, three of which are shown by example. (a first network device **260**, a second network device **262**, and a third network device **264**) Each of the plurality of messaging devices communicates using a network connection **265**. Preferably, at least one messaging client operates within a network device. For example, as illustrated in FIG. **10**, the first messaging client **14** operates within the first network device **260** and the second messaging client **20** operates within the second network device **262**.

Similarly, a plurality of messaging clients can operate within the same network device. For example, the third messaging client **250** and the fourth messaging client **252** operate within the third network device **264**. It will be appreciated by one of ordinary skill in the art that, in accordance with the present invention, a network device can include no messaging client, one messaging client, or a plurality of messaging clients.

Typical resources shared on the LAN **256** through a LAN server **266** are files on a file server, printers on a print server, and electronic message (email) services on an email server. The LAN **256** uses a physical network such as ARCNET, Ethernet, Token-ring, Local Talk or other network media to connect the computers, which represent wired network nodes into the network. The LAN **256** can employ any one of a number of networking protocols, such as TCP/IP (Transmission Control Protocol/Internet Protocol), AppleTalk™, IPX/SPX (Inter-Packet Exchange/Sequential Packet Exchange), Net BIOS (Network Basic Input Output System) or any other packet structures to enable the communication between E-mail clients and the E-mail server. In the following description, the term "local area network" refers to a network utilizing any of the networking protocols mentioned above or an equivalent. The LAN **256** can also use routers (not shown) to subnet the LAN **256** organizationally or physically. In this context, the definition of the LAN **256** as described herein refers to a geographic locality of computers and the type of wired media used to interconnect the computers for communication.

The general function and operation of the WAN **258** is also one of allowing computers to share common resources. However, in this context the definition used herein is one where the computers are not spatially co-located. The typical resources shared are similar to, if not the same, as found in the LAN **256**. However, the WAN **258** uses a different physical network media such as X.25, Frame Relay, ISDN, Modem dial-up or other media to connect other computers or other local area networks to the WAN **258** network. The WAN **258**, for example, can include a number of well-known private wide area networks, one (**268**) of which is shown by example; and public wide area networks, one (**270**) of which is show by example, such as CompuServe™, America Online™ (AOL), the MIT computer network, the Motorola™ computer network and Prodigy™. In the following description, the term "wide area network" refers to any of the networks mentioned above or an equivalent. The WAN **258** described above can operate independently, or can be interconnected through the well-known worldwide Internet computer network **272**. Likewise, the LAN **256** can also

be interconnected to the WAN **258** through the worldwide Internet computer network **272**, as shown, in a manner well known to one of ordinary skill in the art.

In a one embodiment of the present invention, the message server **172** is coupled to the LAN **256** and to the WAN **258** of the wired messaging system **89**. The message server **172** provides a means for real time electronic message communication with all messaging devices communicating within the wired messaging system **89** such as the first network device **260**, the second network device **262**, and the third network device **264**. The message server **172**, for example, receives a request and preferably in response to such receipt, sends a response, via the LAN server **266**, via the worldwide Internet computer network **272**, or an equivalent. The LAN server **266**, the worldwide Internet computer network **272**, or the equivalent then routes the response to the requesting device, which can be an individual or one of the networked devices. In the following description, the term requester refers to any of the requesting devices mentioned above or an equivalent.

FIG. **11** is an electronic block diagram of one embodiment of the messaging communication system **10**, **170** of FIGs. **1** and **8** respectively. Specifically, FIG. **11** illustrates an alternate embodiment of the present invention in which the messaging communication system **10**, **170** is the wired messaging system **89** of FIG. **5**. The wired messaging system **89** illustrated in FIG. **11** is, for example, a broadcast messaging system **274**.

The broadcast messaging system **274** preferably includes a cable headend **276**, a network PSTN **278**, and a plurality of cable boxes, such as the cable box **136** of FIG. **7**, three of which are shown by way of example. (a first cable box **280**, a second cable box **282**, and a third cable box **284.** Each of the plurality of cable boxes communicates within the broadcast messaging system **274** via a wired connection **286**. Preferably, at least one messaging client operates within a cable box. For example, as illustrated in FIG. **11**, the first messaging client **14** operates within the first cable box **280** and the second messaging client **20** operates within the second cable box **282**. Similarly, a plurality of messaging clients can operate within the same cable box. For example, the third messaging client **250** and the fourth messaging client **252** operate within the third cable box **284**. It will be appreciated by one of ordinary skill in the art that, in accordance with the present invention, a cable box can include no messaging client, one messaging client, or a plurality of messaging clients.

The cable headend **276** is coupled to the first cable box **280**, the second cable box **282**, the third cable box **284**, the network PSTN **278**, and, in one embodiment, the message server

172. The cable headend **276** enables operators to deliver services such as conventional video and audio broadcasting, NVOD, VOD, Pay TV, advertising, information, interactive shopping and more. The cable headend **276** preferably offer functions such as MPEG-2/DVB encoding of local and non-compressed programs, insertion of local advertising and events data insertion, conditional access (CA) scrambling, interactive services, and monitoring and control of the entire network. At the multiplexing stage, broadcasters can create program bouquets and add PSI/SI information before the outgoing transport stream is delivered to a conditional access (CA) system for scrambling. Following processing, transport streams are modulated and then transmitted to the cable headend **276** via telecom networks, terrestrial or satellite systems.

In one embodiment of the present invention, the message server **172** is coupled to the cable headend **276** of the broadcast messaging system **274**. The message server **172** provides a means for real time electronic message communication with all cable boxes communicating within the broadcast messaging system **274**. The message server **172**, for example, receives a request and preferably in response to such receipt, sends a response via the cable headend **276**. The cable headend **276** then routes the response to the requesting device, which can be an individual, or can be a cable box. In the following description, the term requester refers to any of the requesting devices mentioned above or an equivalent.

FIG. **12** is an electronic block diagram illustrating an alternative embodiment of the messaging communication system **10,170** in accordance with the present invention. As illustrated, the messaging communication system **10,170** preferably includes a first messaging system **288** having a first plurality of messaging clients **292**, and a second messaging system **290** having a second plurality of messaging clients **294**. In one embodiment, the messaging communication system **10,170** also includes the message server **172**. It will be appreciated by one of ordinary skill in the art that while only two messaging systems are shown by way of example, multiple messaging systems can be interconnected in a manner well known to one of ordinary skill in the art for the transfer of electronic communication such as electronic mail (email), and real time electronic messaging (i.e.: instant messaging and chat messaging) either directly between the messaging systems and/or by using the messaging server **172**.

It will be appreciated by one of ordinary skill in the art that, in accordance with the present invention, the first messaging system **288** and the second messaging system **290** can be the wireless messaging system **114** of FIG. **9**, the wired messaging system **89** of FIG. **10**,

the broadcast messaging system **274** of FIG. **11** or any other equivalent messaging system. Further, in accordance with the present invention, the messaging communication system **10,170** can include a plurality of wireless messaging systems, a plurality of wired messaging systems, or any combination thereof. Similarly, each messaging client of the first plurality of messaging clients **292** and the second plurality of messaging clients **294** can operate within the mobile device **90** of FIG. **6**, the fixed network device **50** of FIG. **5**, or the cable box **136** of FIG. **7**. The first plurality of messaging clients **292** and the second plurality of messaging clients **294**, in accordance with the present invention, can include a plurality of wireless messaging devices, a plurality of wired messaging devices, a plurality of networked devices, or any combination thereof.

FIG. **13** is a flowchart illustrating the operation of the messaging communication system **10,170** in accordance with the present invention. Beginning with Step **296**, the first messaging client **14** establishes the first communication connection **16** for communication within at least one of the plurality of messaging sessions **24** within the messaging communication system **10,170**. For example, when the first messaging client **14** operates within the fixed network device **50**, the first messaging client **14** accesses the appropriate network and notifies the messaging communication system **10,170** of its connection information (i.e.: IP address and number of the port assigned to the first messaging client **14**). Next, in Step **298**, the process determines whether or not an authentication is required. It will be appreciated by one of ordinary skill in the art that an authentication can be required of the first messaging client **14**, of the first account user **29** utilizing the first messaging client **14**, or of the messaging device in which the first messaging client **14** operates, or an equivalent. In Step **300**, when an authentication is required in Step **298**, a first authentication is performed. The first authentication of Step **300** checks that the first account user **29** or alternatively the first messaging client **14** is authorized to establish the first communication connection **16** and/or authorized to participate within one or more of the plurality of messaging sessions **24**. Next, in Step **302**, when the first authentication of Step **300** is completed, and also when the authentication is not required in Step **298**, the first messaging client **14** operates using the first communication connection **16** and accumulates the plurality of session data **36** for each messaging session **40** for which the first messaging client **14** is participating. In accordance with the present invention, the plurality of session data **36** can include the session identifier **41**, the session priority **42**, the session preferences **43**, the session participants **44**, or the session history **45**. It will be appreciated by one of

ordinary skill in the art that the plurality of session data **36** can include any of the items mentioned herein or an equivalent. Next, in Step **304**, the process determines whether a data transfer is required or requested. A data transfer, in accordance with the present invention, is the capability for a first account user **29** to change communication means within the messaging communication system **10, 170** from the first messaging client **14** to the second messaging client **20**. For example, when the first account user **29** establishes the first communication connection **16** using the fixed network device **50** and thereafter needs to become mobile, the first account user **29** can transfer the first client data **17** including the plurality of session data **36** accumulated for the first communication connection **16** to the second messaging client **20** which for example can operate on the mobile device **90**. When no data transfer is required or requested in Step **304**, the first communication connection **16** is maintained in Step **302**, whereby the first messaging client **14** continues to accumulate the plurality of session data **36** for each messaging session **40** for which the first messaging client **14** participates. In Step **306**, when a data transfer is required or requested in Step **304**, the process determines if it is necessary to verify the second messaging client **20** prior to transferring the first client data **17** including the plurality of session data **36** to the second messaging client **20**. When verification of the second messaging client **20** is required, the second messaging client **20** is verified in step **308**. For example, the first messaging client **14** and the second messaging client **20** can both be pre-configured with a private value and the first messaging client **14** can exchange messages with the second messaging client **20** that verify that the second messaging client **20** has the correct private value. Next, in Step **310**, after the second messaging client **20** is verified in Step **308** or when no verification is required in Step **306**, the first client data **17** including the plurality of session data **36** is transferred from the first messaging client **14** to the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that a portion of the first client data **17** can alternatively be transferred in Step **310.** It will further be appreciated by one of ordinary skill in the art that the transfer of the first client data **17** can be accomplished using a direct connection between the first messaging client **14** and the second messaging client **20** or a connection through the message server **172,** both either via a network connection, a wireless connection such as through the wireless communication system **114**, a Bluetooth connection, or IRDA connection, a wired connection such as through the wired communication system **89**, a network connection separate from the wireless communication system, an RS-232 connection or the broadcast messaging system **274**, or an equivalent.

Next, in Step **312**, the process determines whether or not the second communication connection **22** has already been established. For example, the second messaging client **20** can establish the second communication connection **22** independently from the establishment of the first communication connection **16** by the first messaging client **14**. The second messaging client **20** can establish the second communication connection **22** but not yet be participating in a messaging session. Alternatively, the second messaging client **20** can independently be participating in one or more messaging session of the plurality of messaging session **24** which can be the same or different messaging sessions from the ones that the first messaging client **14** is participating. In Step **314**, when no second communication connection **22** has been established for the second messaging client **20**, the process determines whether or not the authentication key **33** is required. In Step **316**, when the authentication key **33** is required in Step **314**, the first messaging client **14** transfers the authentication key **33** to the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that the second messaging client **20** can include a plurality of authentication keys and that in step **316** the first messaging client **14** can send an indicator of which of the plurality of authentication keys should be used. It will be appreciated by one of ordinary skill in the art that an authentication key can be required of the second messaging client **20**, of the first account user **29**, or any other account user **30** utilizing the second messaging client **20**, or of the particular messaging device in which the second messaging client **20** operates, or an equivalent. It will further be appreciated by one of ordinary skill in the art that the transfer of the authentication key **33** can be accomplished using a direct connection between the first messaging client **14** and the second messaging client **20** or a connection through the message server **172,** both either via a network connection, a wireless connection such as through the wireless communication system **114**, a Bluetooth connection, or IRDA connection, a wired connection such as through the wired communication system **89**, a network connection separate from the wireless communication system , an RS-232 connection or the broadcast messaging system **274**, or an equivalent. Next, in Step **318,** when no authentication key is required in Step **314** or after the transfer of the authentication key in Step **316**, the second communication connection **22** is established. The second messaging client **20** establishes the second communication connection **22** for communication within at least one of the plurality of messaging sessions **24** within the messaging communication system **10,170.** For example, when the second messaging client **20** is the mobile device **90**, the second messaging client **20** accesses the appropriate network

through the wireless communication system **114** and notifies the messaging communication system **10,170** of its connection information (i.e.: the second address **244** of the second mobile device **230** when the second messaging client **20** operates within the second mobile device **230**). Next, in Step **320,** the process determines whether or not an authentication is required. It will be appreciated by one of ordinary skill in the art that an authentication can be required of the second messaging client **20**, of the first account user **29**, or any other account user **30** utilizing the second messaging client **20**, or of the particular messaging device in which the second messaging client **20** operates, or an equivalent. In Step **322**, when an authentication is required in Step **320**, a second authentication is performed. Next, in Step **324**, when the second communication connection **22** is already established in Step **312**, or after the second session connection **22** is established in Step **318** and authentication is not required in Step **320**, or after the second authentication in Step **322**, the second communication connection **22** is operated using the first client data **17** including the plurality of session data **36** transferred from the first messaging client **14** to the second messaging client **20** in Step **310**.

The method illustrated by the flowchart of FIG. **13** allows messaging sessions to be easily transferred between messaging clients while maintaining session continuity and assuring session security. The account user can switch to a different messaging client on a different messaging system without being required to re-initiate each messaging session that was in progress on the first messaging client. Session continuity is maintained within the two messaging clients, and optionally the transfer does not affect other messaging session participants.

Similarly, the method illustrated by the flowchart of FIG. **13** allows messaging sessions to be easily transferred between different account users. For example, if the first account user **29** is a customer service representative and the first account user **29** is a participant in the plurality of messaging sessions **24** with customers. The first account user **29** may want to transfer a portion of the plurality of messaging sessions **24** to another account user **30** such as a second customer service representative. The second customer service representative would benefit from having access to the session history **45** of the transferred messaging sessions. For example, the second customer representative can avoid asking the customer for information already provided to the first account user **29**.FIG. **14** is a flowchart illustrating more detail of the operation of the messaging communication system **10,170**. Specifically, FIG. **14** illustrates various methods in which the data transfer query

(Step **304** of FIG. **13**) can be answered in the affirmative. The operation begins with Step **302**, in which the first messaging client **14** operates using the first communication connection **16** and accumulates the plurality of session data **36** for each messaging session **40** for which the first messaging client **14** is participating. Next, in Step **326**, the process determines whether or not the first messaging device in which the first messaging client **14** operates has received a user input requesting the transfer of at least a portion of the first client data **17** including the plurality of session data **36**. For example, when the messaging device in which the first messaging client **14** operates is the fixed network device **50** of FIG. **5**, the first account user **29** can enter and manipulate information (including requesting the transfer of the first client data **17**) by the user input **88** to the user interface **64**, e.g., the keyboard **66**, the "mouse," **68**, the pen or puck activated tablet (not shown), the trackball **70**, the audio activated command recognition processor **72**, or the like. Similarly, when the first messaging device in which the first messaging client **14** operates is the mobile device **90** of FIG. **6**, the first account user **29** can enter a user input such as a button press, a series of button presses, a voice response, or some other similar method of manual response initiated by the first account user **29** to the device user interface **110** of the mobile device **90**. Similarly, when the first messaging device in which the first messaging client **14** operates is the cable box **136** of FIG.**7**, the user input is made via the cable box user interface **160**. It will be appreciated by one of ordinary skill in the art that the user input can be any of the inputs mentioned herein or an equivalent. When a user input requesting the transfer of at least a portion of the first client data **17** including the plurality of session data **36** is not received by the first messaging device in which the first messaging client **14** operates, the process next, in Step **328** determines whether a user input requesting the transfer of at least a portion of the first client data **17** including the plurality of session data **36** has been received by a second messaging device in which the second messaging client **20** operates. For example, when the second messaging device in which the second messaging client **20** operates is the fixed network device **50** of FIG. **5**, the first account user **29** can enter and manipulate information (including requesting the transfer of the first client data **17**) by the user input **88** to the user interface **64**, e.g., the keyboard **66**, the "mouse," **68**, the pen or puck activated tablet (not shown), the trackball **70**, the audio activated command recognition processor **72**, or the like. Similarly, when the second messaging device in which the second messaging client **20** operates is the mobile device **90** of FIG. **6**, the first account user **29** of the mobile device **90** can enter a user input such as a button press, a series of button presses,

a voice response, or some other similar method of manual response initiated by the first account user **29** to the device user interface **110** of the mobile device **90**. Similarly, when the second messaging device in which the second messaging client **20** operates is the cable box **136** of FIG.**7**, the user input is made via the cable box user interface **160**. It will be appreciated by one of ordinary skill in the art that the user input can be any of the inputs mentioned herein or an equivalent. When a user input requesting the transfer of at least a portion of the first client data **17** including the plurality of session data **36** is not received by the second messaging device in which the second messaging client **20** operates, the process next, in Step **330** determines whether the second messaging client **20** is the mobile device **90**, and if so, whether the transfer of at least a portion of the first client data **17** including the plurality of session data **36** is initiated in response to detection of a movement of the mobile device **90**. For example, the server processor **174** of the message server **172** can be programmed to track the location of each of the plurality of messaging clients **12**, and transfer the plurality of session data **36** to the second messaging client **20** in response to the detection of a change of location of the mobile device **90** in which the second messaging client **20** operates. Alternatively, the mobile device **90** can include location-sensing capabilities such as a Global Positioning Satellite receiver, and in response to the detection of a change of location, send a request to transfer the plurality of session data **36**. Alternatively, the second messaging device in which the second messaging client **20** operates can detect its removal from a charging base. Alternatively, the second messaging device in which the second messaging client **20** operates may have a motion-sensing device such as a tilt sensor whose electrical properties change when under motion. When no device movement is detected or alternatively a device movement program is not included in either the mobile device **90** or the message server **172**, in Step **330**, the process continues to Step **331** in which it is determined whether or not the transfer of at least a portion of the first client data **17** including the plurality of session data **36** is required due to the activation of the second messaging client **20**. The activation of the second messaging client **20** can be, for example, in response to a user input to a power circuit that powers the second messaging client **20**. Alternatively, the activation of the second messaging client **20** can be in response to an instruction command to activate sent from CPU **53** to the fixed messaging client **84** of the fixed network device **50**, from the processor **102** to the mobile messaging client **112** of the mobile device **90**, or from the controller **138** to the cable messaging client **40** of the cable box **136**. In one embodiment of the present invention, the message server **172** is

programmed to detect the activation of the second messaging client **20**. In an alternate embodiment, the second messaging client **20** can request the transfer of at least a portion of the first client data **17** including the plurality of session data **36** upon being activated. When the second messaging client **20** is not activated in Step **331**, the process continues to Step **332** in which it is determined whether the second messaging client **20** has connected to the message server **172**. When no connection of the second messaging client **20** is detected, the process returns to Step **326** and continues checking for the various methods in which the data transfer query (Step **304** of FIG. **13**) can be answered in the affirmative. In Step **333**, when there is an affirmative answer to any of the previous Steps **326** to **332**, the query of Step **304** of FIG. **13** of whether or not to transfer data is answered in the affirmative.

FIG. **15** is a flowchart illustrating more detail of the operation of the messaging communication system **10,170**. Specifically, FIG. **15** illustrates various ways in which the first messaging client **14** can operate in relation to the transfer of the plurality of the first client data **17**. The operation begins with Step **302**, in which the first messaging client **14** operates using the first communication connection **16** and accumulates the plurality of session data **36** for each messaging session **40** for which the first messaging client **14** is participating. Next, in Step **334**, the process determines whether it is required or requested to disconnect the first messaging client **14** from the first communication connection **16**. When it is required or requested to disconnect the first messaging client **14** from the first communication connection **16**, in Step **336** the first messaging client **14** is disconnected from the first communication connection **16**. Next, in Step **310**, when the first messaging client **14** is disconnected from the first communication connection **16** in Step **336** and when it is not desired to disconnect the first messaging client **14** from the first communication connection **16** in Step **334**, at least a portion of the first client data **17** including the plurality of session data **36** is transferred from the first messaging client **14** to the second messaging client **20**. Next, in Step **338**, the process once again determines whether it is required or requested to disconnect the first messaging client **14** from the first communication connection **16**. In Step **340**, when it is required or requested to disconnect the first messaging client **14** from the first communication connection **16**, the first messaging client **14** is disconnected from the first communication connection **16**. When no disconnection of the first messaging client **14** is required or requested in Step **338**, the process moves to Step **342** in which the first messaging client **14** continues the first communication connection **16** using the first client data **17** and accumulating the plurality of session data **36**. Next, in Step

324, and also after disconnecting the first messaging client **14** in Step **340**, the second messaging client **20** operates the second communication connection **22** using the transferred portion of the first client data **17** including the plurality of session data **36**.

The flowchart of FIG. **15** as described herein provides an efficient and flexible method for disconnecting the first messaging client **14** from the first communication connection **16** prior to the transfer of the first client data **17** including the plurality of session data **36** or after the transfer of the first client data **17** including the plurality of session data **36**. Further, it provides a method for the continued operation of the first messaging client **14** on the first communication connection **16** and the second messaging client **20** on the second communication connection **22** using the same plurality of session data **36** included in at least a portion of the first client data **17**.

FIG. **16** is a flowchart illustrating more detail of the operation of the messaging communication system **10,170**. Specifically, FIG. **16** illustrates more detail of the transfer of the first client data **17** from the first messaging client **14** to the second messaging client **20** or alternatively a portion of the first client data **17** such as the client data portion **18** or alternatively the session portion **49**. The operation begins with Step **302**, in which the first messaging client **14** operates using the first communication connection **16** and accumulates the plurality of session data **36** for each messaging session **40** for which the first messaging client **14** is participating. While operating within the first communication connection **16**, the first client data **17** of the first messaging client **14** includes both the client data such as the first client identifier **15** as well as an accumulation of the plurality of session data **36**. Next, in Step **344**, the process determines whether only a portion of the first client data **17** such as the client data portion **18** or the session portion **49** is being transferred. In Step **346**, when the entire first client data **17** is being transferred in Step **344**, the first client data **17** is transferred from the first messaging client **14** to the second messaging client **20**. Thereafter, the second client data **23** of the second messaging client **20** includes the first client data **17** along with any other client data already included within the second client data **23**. It will be appreciated by one of ordinary skill in the art that the transfer of the first client data **17** can be accomplished using a direct connection between the first messaging client **14** and the second messaging client **20** or a connection through the message server **172** both either via a network connection, a wireless connection such as through the wireless communication system **114**, a wired connection such as through the wired communication system **89** or the broadcast messaging system **274**, or an equivalent.

Next, in Step **348**, when a portion of the first client data **17** is being transferred, the process determines whether a client data requirement has been sent from the second messaging client **20** to the first messaging client **14**. In Step **350**, when a client data requirement has been sent from the second messaging client **20** to the first messaging client **14**, the client data portion **18** is determined using the client data requirement. For example, due to memory limitations of the device in which the second messaging client **20** operates, the client data portion **18** can be a defined, limited portion of the session history **45**. As another example, the client data requirement can be the plurality of user preferences **35** for the first messaging client **14** set by the first account user **29**. It will be appreciated by one of ordinary skill in the art that the client data requirement can be a requirement for all or any portion of the first client data **17** sent from the second messaging client **20**. When no client data requirement has been received by the first messaging client **14** from the second messaging client **20**, the process moves to Step **352** in which the process determines whether a predetermined client data portion **18** has been programmed either into the first messaging client **14** or alternatively into the message server **172**. In Step **354**, when the predetermined client data portion **18** has been programmed, the client data portion **18** is determined using the predetermined client data portion **18**. In Step **356**, when no predetermined portion has been defined in Step **352**, some other method is used to identify the client data portion **18**. It will be appreciated by one of ordinary skill in the art that any other method can be used to identify the client data portion **18** in accordance with the present invention. Next, in Step **358**, when the client data portion **18** has been identified in Step **350**, **354**, or **356**, the client data portion **18** is transferred from the first messaging client **14** to the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that the transfer of the client data portion **18** can be accomplished using a direct connection between the first messaging client **14** and the second messaging client **20** or a connection through the message server **172,** both either via a network connection, a wireless connection such as through the wireless communication system **114**, a wired connection such as through the wired communication system **89** or the broadcast messaging system **274**, or an equivalent.

The flowchart of FIG. **16** provides a method for limiting the amount of client data transferred from the first messaging client **14** to the second messaging client **20,** optimizing the efficiency of the transfer of client data to maintain overall optimal system utilization.

FIG. **17** is a flowchart illustrating further operation of the messaging communication system **10,170** in which the first messaging client **14** participates in a plurality of messaging

sessions **24**. The operation begins with Step **359** in which the first messaging client establishes the first communication connection **16.** Next, in Step **360**, a counter is set to N=1. Next, in Step **362**, the process determines whether the first messaging client **14** is participating in an Nth messaging session. In Step **364**, when the first messaging client **14** is not participating in the Nth messaging session, the counter is incremented by one (1). Next, in Step **365**, the process determines whether or not the Nth messaging session exists. When the Nth session does not exist, the process ends. When the Nth messaging session does exist, the process returns to Step **362** in which it is determined whether the first messaging client **14** is participating in the Nth messaging session. In Step **366**, when the first messaging client **14** is participating in the Nth messaging session in Step **362**, the Nth messaging session including its associated session data is included in the first communication connection **16**. Next, in Step **368**, it is determined whether the Nth messaging session is requested or required to be transferred from the first messaging client **14** to the second messaging client **20**. When the Nth messaging session is not requested or required to be transferred in Step **368**, the process returns to Step **366** in which the first communication connection **16** continues to include the Nth messaging session. In Step **370**, when, in Step **368**, the Nth messaging session is being transferred, session data for the Nth messaging session is included in the plurality of session data **36** of the first client data **17**. The session data included for the Nth messaging session can be, for example, the Nth session identifier **41**, the Nth session priority **42**, the Nth session preferences **43**, the Nth session participants **44** and/or the Nth session history **45**. Next, in Step **310**, at least a portion of the first client data **17** including the session data for the Nth messaging session is transferred from the first messaging client **14** to the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that, in accordance with the present invention, the plurality of session data for each messaging session to be transferred can be transferred separately. Alternatively, in accordance with the present invention, the plurality of session data for all messaging sessions being transferred can be transferred at one time in one or more communications. Next, in Step **312**, the process determines whether or not the second communication connection **22** has been established. In Step **318**, when the second communication connection **22** has not been established, the second communication connection **22** is established. In Step **372**, when the second communication connection **22** is already established in Step **312**, or after the second communication connection **22** is established in Step **318**, the Nth messaging session, along with any portion of the first client

data **17** transferred, is included within the second communication connection **22** for the second messaging client **20**. Next, in Step **374**, the process determines whether a notification of data transfer is required or requested. In step **376**, when a notification is required or requested, the notification is sent. It will be appreciated by one of ordinary skill in the art that the notification of data transfer can be sent for each messaging session separately. Alternatively, in accordance with the present invention, the notification of data transfer can be sent for all messaging sessions being transferred in one notification message. In accordance with the present invention, the notification of data transfer can be sent to at least one of the plurality of messaging clients **12** participating in the Nth messaging session. Alternatively or additionally, the notification of data transfer can be sent to the message server **172**. The notification of data transfer can be sent from the first messaging client **14**, from the second messaging client **20**, from the message server **172**, or an equivalent. Preferably, the notification includes the client profile **85** stored in the device in which the second messaging client **20** operates. The message communication system **10, 170**, including one or more of the plurality of messaging clients **12** and/or the message server **172**, can modify the content sent to the second messaging client **20** based on the client profile **85**. Next, the process returns to Step **364** in which the counter is incremented.

FIG. **18** is a flowchart illustrating one embodiment of the operation of the messaging communication system **170** in which the plurality of messaging sessions **24** includes the multiple user messaging session **19**. The operation begins with Step **378** in which the multiple user messaging session **19** is established within the messaging communication system **170**. The multiple user messaging session **19** includes the plurality of session messages **61** among the plurality of messaging clients **12**. Next, in Step **380**, the process determines whether the first messaging client **12** is participating in the multiple user messaging session **19**. When the first messaging client **12** is not participating in the multiple user messaging session **19**, the process ends. In Step **381**, when the first messaging client **12** is participating in the multiple user messaging session **19**, the first communication connection **16** includes the multiple user messaging session **19**. Further, the data for the multiple user messaging session **19** is part of the plurality of session data **36**. Data for the multiple user messaging session **19** can be, for example, the session identifier **41**, the session priority **42**, the session preferences **43**, the session participants **44** and/or the session history **45** of the multiple user messaging session **19**. Next, in Step **304**, the process determines whether a data transfer is required or requested. When no data transfer is required or

requested in Step **304**, the first communication connection **16** including the multiple user messaging session **19** is maintained in Step **381**. It will be appreciated by one of ordinary skill in the art that the plurality of session data **36** for the multiple user messaging session **19** is updated periodically as the multiple user messaging session **19** continues. (not shown) Next, in Step **310**, when a data transfer is requested or required in Step **304** at least a portion of the first client data **17** including the plurality of session data **36** is transferred from the first messaging client **14** to the second messaging client **20**.

Next, in Step **382**, a data transfer message **384** is sent to the message server **170**. Preferably, the data transfer message **384** is as illustrated in FIG. **19**. The data transfer message **384** preferably includes a session reservation **385**. For example, the session reservation **385** could save a connection within the multiple user messaging session **19** for any messaging client that is being used by the same account identifier used in the first messaging client **14**. As shown in FIG. **19**, the data transfer message **384** alternatively includes the session identifier **41** of the multiple user messaging session **19**, the first client identifier **15** of the first messaging client **14**, the second client identifier **21** of the second messaging client **20**, and the session reservation **385**. The session reservation **385** saves a connection within the multiple user messaging session **19** for the second messaging client **20** having the second client identifier **21**. It will be appreciated by one of ordinary skill in the art that the data transfer message **384** can be sent using a network connection, a wireless connection such as through the wireless communication system **114**, a wired connection such as through the wired communication system **89** or the broadcast messaging system **274**, or an equivalent.

Referring back to FIG. **18**, next, in Step **383**, the second messaging client **20** establishes the second communication connection **22** for participating within the multiple user messaging session **19**. In one embodiment of the present invention, the message server **172** can require that Step **383** be performed within a specific time period after it received the data transfer message **384**. (not shown) If this time is exceeded, the message server **172** can release the reserved seat to be used by any of the plurality of messaging clients **12**. The operation of the message communication system **170** as illustrated in FIG. **18** provides a means for the first account user **29** to ensure that there is an opening within the multiple user messaging session **19** when the first account user **29** transfers at least a portion of the first client data **17** including the plurality of session data **36** (and accordingly the communication means) from the first messaging client **14** to the second messaging client **20**. This operation

is especially beneficial in situations in which there are a limited number of available openings within the multiple user messaging session **19** and the first account user **29** could lose his/her space during the transfer of data from one messaging client to another messaging client.

FIG. **20** is a signaling flow diagram illustrating an example of the interaction between the elements of the messaging communication system **10, 170,** according to the present invention. Specifically, FIG. **20** illustrates the interaction between the first messaging client **14**, the second messaging client **20**, the messaging client **26**, and the message server **172**. In accordance with the present invention, as illustrated in FIG. **20**, a second account user, such as the account user **30**, logs onto the messaging client **26** and sends a notification signal **388** to the message server **172**. Preferably, the notification signal **388** further includes the second account identifier of the second account user. The notification signal **388** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the messaging client **26**. Similarly, the first account user **29** logs onto the first messaging client **14** and sends a notification signal **386** to the message server **172**. The notification signal **386** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the first messaging client **14**. Preferably, the notification signal **386** also includes the first account identifier of the first account user **29**. It will be appreciated by one of ordinary skill in the art that alternatively, the notification signals **386** and **388** can be sent directly to one or more of the plurality of messaging clients **12**. In response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **390** to the messaging client **26**. The client availability signal **390** informs the second account user via the messaging client **26** that the first account user **29** is available for real time electronic communications such as for participation in one or more of the plurality of messaging sessions **24**. Similarly, in response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **392** to the first messaging client **14**. The client availability signal **392** informs the first account user **29** via the first messaging client **14** that the second account user is available for real time electronic communications such as for participation in one or more of the plurality of messaging sessions **24**. Next, the first account user **29** initiates the messaging session **40** with the

second account user by sending a session message **394** to the message server **172**. The message server **172**, acting as a store and forward device, sends a session message signal **396** containing substantially the same message information as the session message **394** to the second account user via the messaging client **26**. In response to receiving the session message signal **396**, a window is created on the display of the messaging device in which the second messaging client **26** operates and the session message **46**, preferably along with the first account identifier of the first account user **29**, is displayed in the created window. Next, the second account user via the messaging client **26** sends a response message **398** to the message server **172**. The message server **172**, acting as a store and forward device, sends a response message signal **400** to the first account user **29** via the first messaging client **14** containing substantially the same message information as the response message **398**. In response to receiving the response message signal **400**, the created messaging session window is updated on the display of the messaging device in which the first messaging client **14** operates and the session message contained within the response message **398**, preferably along with the second account identifier of the second account user, is displayed. Although one session message **394** and one response message **398** is illustrated by way of example in FIG. **20**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** between the first account user's first messaging client **14** and the second account user's messaging client **26** can include a plurality of session messages and a plurality of response messages. Further, although the interaction of two account users and two messaging clients is illustrated by way of example in FIG. **20**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** can include a plurality of messaging clients and an associated plurality of account users. Further, it will be appreciated by one of ordinary skill in the art that the session message **394** can be sent directly from the first messaging client **14** to the messaging client **26**; and similarly the response message **398** can be sent directly from the messaging client **26** to the first messaging client **14**, without the interface of the message server **170**, in accordance with the present invention.

According to the present invention, an account user can choose to initiate a data transfer. As illustrated in FIG. **20**, the first account user **29** via the first messaging client **14** sends a transfer request signal **402** including at least a portion of the first client data **17** such as the plurality of session data **36** currently contained on the first account user's first messaging client **14** to the message server **172**. The transfer request signal **402** preferably

also includes a request to the message server **172** to transfer at least a portion of the first client data **17** including the plurality of session data **36** to a new messaging client such as the second messaging client **20**. For example, the first messaging client **14** can be a fixed personal computer such as the fixed network device **50** in the office of the first account user **29**. The first account user **29** has the need to become mobile. The second messaging client **20** can be a cellular telephone such as the mobile device **90**. The first account user **29**, according to the present invention, can pass the current messaging session from his/her personal computer to his/her cellular telephone with no loss of communication or of session data. Similarly, the transfer request signal **402** can include a request for the message server **172** to pass the plurality of session data **36** for more than one messaging session. In response to receiving the transfer request signal **402**, the message server **172** determines whether the second messaging client **20** is currently connected onto the message server **172**. (not shown) For example, the message server **172** determines whether the second messaging client **20** has established the second communication connection **22**. When the second messaging client **20** is not currently connected with the message server **172**, the message server **172** stores the plurality of session data **36** and/or the first client data **17** if so requested until the second messaging client **20** is connected. (not shown) When the second messaging client **20** is connected to the message server **172**, the message server **172** sends the data signal **404** including the plurality of session data **36** and/or any portion of the first client data **17** received from the first messaging client **14** within the transfer request signal **404** to the second messaging client **20**. The second messaging client **20** stores the plurality of session data **36** and/or the portion of the first client data **17** in memory and displays the session history **45** for access and use by the first account user **29** on the display of the messaging device in which the second messaging client **20** operates. It will be appreciated by one of ordinary skill in the art that the data signal **404** can include the plurality of session data **36** for one messaging session or for a plurality of messaging sessions, or can include the first client data **17** or the client data portion **18** of the first client data **17** for the first messaging client **14**. Similarly the messaging device in which the second messaging client **20** operates can store one messaging session or a plurality of messaging sessions, the first client data **17** or the client data portion **18** of the first client data **17** in its memory in response to receiving the data signal **404**. Preferably, in response to receiving the data signal **404**, the second messaging client **20** sends an acknowledgement signal **406** to the message server **172**. The message server **172** also preferably sends a transfer acknowledgement signal **410** to the first

account user's first messaging client **14**. The messaging session **40** seamlessly continues between the first account user **29** and the second account user through the second messaging client **20** and the messaging client **26** as illustrated by the plurality of session messages **412** to **422**. The messaging session **40** continues seamlessly without the second account user being necessarily aware of the transfer of the first client data from the first account user's first messaging client **14** to his/her second messaging client **20**. It will be appreciated by one of ordinary skill in the art that although only a second account user is shown in FIG. **20** by way of example, the messaging session **40** can continue seamlessly between a plurality of account users and associated plurality of messaging clients.

Preferably, the first messaging client **14** is disconnected from the messaging session **40** upon completion of the data transfer. (not shown) It will be appreciated by one of ordinary skill in the art that the first messaging client **14** can be automatically disconnected from the messaging session **40** or alternatively the first messaging client **14** can be disconnected manually by the first account user **29**. Similarly, it will be appreciated by one of ordinary skill in the art the first messaging client **14** can continue to be active in the messaging session **40** along with the second messaging client **20**. (not shown)

FIG. **21** is a signaling flow diagram illustrating the interaction between the elements of the messaging communication system **10,170**, according to the present invention. Specifically, FIG. **21** illustrates the interaction between the first messaging client **14**, the second messaging client **20**, the messaging client **26**, and the message server **172**, according to the present invention. In accordance with the present invention, as illustrated in FIG. **21**, a second account user, such as the account user **30**, logs onto the messaging client **26** and sends a notification signal **388** to the message server **172**. For example, the messaging client **26** establishes the communication connection **28**. The notification signal **388** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the messaging client **26**. Preferably, the notification signal **388** further includes the second account identifier of the second account user. Similarly, the first account user **29** logs onto the first messaging client **14** and sends a notification signal **386** to the message server **172**. For example, the first messaging client **14** establishes the first communication connection **16**. The notification signal **386** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the first messaging client **14**. Preferably, the notification signal **386** also includes the first account identifier of the first account user **29**. It will be appreciated by one of

ordinary skill in the art that alternatively, the notification signals **386** and **388** can be sent directly to one or more of the plurality of messaging clients **12**. In response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **390** to the messaging client **26**. The client availability signal **390** informs the second account user via the messaging client **26** that the first account user **29** is available for real time electronic communications such as participation in one or more messaging sessions. Similarly, in response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **392** to the first messaging client **14**. The client availability signal **392** informs the first account user **29** via the first messaging client **14** that the second account user is available for real time electronic communications such as participation in one or more messaging sessions. Next, the first account user **29** initiates the messaging session **40** with the second account user by sending a session message **424** to the message server **172**. The message server **172**, in response to receiving the session message **424** sends a messaging session participation request **426** to the second account user via the messaging client **26**. The messaging client **26** asks the second account user if he/she wants to participate in the messaging session **40** with the first account user **29**. When the second account user does not accept the messaging session participation request **426**, the process stops. (not shown) When the second account user does accept the messaging session participation request **426**, the messaging client **26** sends a messaging session participation acceptance signal **428** to the message server **172**. The message server **172**, in response to receiving the messaging session participation acceptance signal **428**, sends a session message signal **396** containing substantially the same message information as the session message **424** to the second account user via the messaging client **26**. In response to receiving the session message signal **396**, a window is created on the display of the messaging device in which the messaging client **26** operates and the session message **46**, preferably along with the first account identifier of the first account user **29**, is displayed on the created window. Next, the second account user via the messaging client **26** sends a response message **398** to the message server **172**. The message server **172**, acting as a store and forward device, sends a response message signal **400** to the first account user **29** via the first messaging client **14** containing substantially the same message information as the response message **398**. In response to receiving the response message signal **400**, the open

display window is updated on the display of the messaging device in which the first messaging client **14** operates and the session message, preferably along with the second account identifier of the second account user, is displayed. Although one session message **396** and one response message **398** is illustrated by way of example in FIG. **21**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** between the first account user's first messaging client **14** and the second account user's messaging client **26** can include a plurality of session messages and a plurality of response messages. Further, although the interaction of two account users and two messaging clients is illustrated by way of example in FIG. **21**, it will be appreciated by one of ordinary skill in the art that the messaging session can include a plurality of messaging clients and an associated plurality of account users.

According to the present invention, an account user can choose to initiate a data transfer. As illustrated in FIG. **21**, the first account user **29** via the second messaging client **20** sends a transfer request signal **430** to the first account user's first messaging client **14**. In response, the first messaging client **14** sends a connection discovery and verification signal **432** to the second messaging client **20**. The second messaging client **20** then sends an acknowledgement signal **434** to the first messaging client **14**. The acknowledgement signal **434** preferably includes verification data in which the first messaging client **14** can verify the validity of the second messaging client **20**. The first messaging client **14** then sends a data signal **436** to the second messaging client **20**. In a preferred embodiment, the second messaging client **20**includes session transfer capabilities. Alternatively, the messaging device in which the second messaging client **20** operates includes the data transfer application **83**. The first account user **29** launches the data transfer application **83** or alternatively the data transfer capabilities of the second messaging client **20,** and utilizes the data transfer application **83** and/or the second messaging client **20** to achieve the transfer of at least a portion of the first client data **17** including the plurality of session data **36** from the first messaging client **14**. The data transfer application **83** stores first client data received including the plurality of session data **36** for the messaging session **40** in the memory of the messaging device and launches the second messaging client **20** if it is not already active. The messaging device in which the second messaging client **20** operates displays the session history **45** for access and use by the first account user **29** on the messaging device in which the second messaging client **20** operates. It will be appreciated by one of ordinary skill in the art that the session data signal **436** can include the plurality of session data **36** for one

messaging session or for a plurality of messaging sessions, or can include the first client data **17** or the client data portion **18** of the first client data **17** for the first messaging client **14**. Similarly the messaging device in which the second messaging client **20** operates can store one messaging session or a plurality of messaging sessions, the first client data **17** or the client data portion **18** of the first client data **17** in its memory in response to receiving the session data signal **436**.

The messaging session **40** continues between the first account user **29** and the second account user through the second messaging client **20** and the messaging client **26** as illustrated by the plurality of session messages **412** to **422**. The messaging session **40** continues seamlessly without the second account user being necessarily aware of the transfer of the portion of the first client data **17** including the plurality of session data **36** from the first messaging client **14** to the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that although only a second account user is shown in FIG. **21** by way of example, the messaging session **40** can continue seamlessly between a plurality of account users and associated plurality of messaging clients.

Preferably, the first messaging client **14** is disconnected from the messaging session **40** upon completion of the data transfer. (not shown) It will be appreciated by one of ordinary skill in the art that the first messaging client **14** can be automatically disconnected from the messaging session **40** or alternatively the first messaging client **14** can be disconnected manually by the first account user **29**. Similarly, it will be appreciated by one of ordinary skill in the art the first messaging client **14** can continue to be active in the messaging session **40** along with the second messaging client **20**. (not shown)

FIG. **22** is a signaling flow diagram illustrating the interaction between the elements of the messaging communication system **10, 170**, according to the present invention. Specifically, FIG. **22** illustrates the interaction between the first messaging client **14**, the second messaging client **20**, the messaging client **26**, and the message server **172**. In accordance with the present invention, as illustrated in FIG. **22**, a second account user, such as the account user **30**, logs onto the messaging client **26** and sends a notification signal **388** to the message server **172**. For example, the messaging client **26** establishes the communication connection **28**. The notification signal **388** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the messaging client **26**. Preferably, the notification signal **388** further includes the second account identifier of the second account user. Similarly, the first account user **29**

logs onto the first messaging client **14** and sends a notification signal **386** to the message server **172**. For example, the first messaging client **14** establishes the first communication connection **16**. The notification signal **386** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the first messaging client **14**. Preferably, the notification signal **386** also includes the first account identifier of the first account user **29**. It will be appreciated by one of ordinary skill in the art that alternatively, the notification signals **386** and **388** can be sent directly to one or more of the plurality of messaging clients **12**. In response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **390** to the messaging client **26**. The client availability signal **390** informs the second account user via the messaging client **26** that the first account user **29** is available for real time electronic communications such as participation in one or more of the plurality of messaging sessions **24**. Similarly, in response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **392** to the first messaging client **14**. The client availability signal **392** informs the first account user **29** via the first messaging client **14** that the second account user is available for real time electronic communications such as participation in one or more of the plurality of messaging sessions **24**. Next, the first account user **29** initiates the messaging session **40** with the second account user by sending a session message **424** to the message server **172**. The message server **172**, in response to receiving the real time electronic message **424** sends a messaging session participation request **426** to the second account user via the messaging client **26**. The messaging client **26** asks the second account user if he/she wants to participate in the messaging session **40** with the first account user **29**. When the second account user does not accept the messaging session participation request **426**, the process stops. (not shown) When the second account user does accept the messaging session participation request **426**, the messaging client **26** sends a messaging session participation acceptance signal **428** to the message server **172**. The message server **172**, in response to receiving the messaging session participation acceptance signal **428**, sends a session message signal **396** containing substantially the same message information as the session message **424** to the second account user via the messaging client **26**. In response to receiving the session message signal **396**, a window is created on the display of the messaging device in which the messaging client **26** operates

and the session message **46**, preferably along with the first account identifier of the first account user **29**, is displayed. Next, the second account user via the messaging client **26** sends a response message **398** to the message server **172**. The message server **172**, acting as a store and forward device, sends a response message signal **400** to the first account user **29** via the first messaging client **14** containing substantially the same message information as the response message **398**. In response to receiving the response message signal **400**, the open display window is updated on the display of the messaging device in which the first messaging client **14** operates and the session message, preferably along with the second account identifier of the second account user, is displayed. Although one session message **396** and one response message **398** is illustrated by way of example in FIG. **22**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** between the first account user's first messaging client **14** and the second account user's messaging client **26** can include a plurality of session messages and a plurality of response messages. Further, although the interaction of two account users and two messaging clients is illustrated by way of example in FIG. **22**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** can include a plurality of messaging clients and an associated plurality of account users.

According to the present invention, an account user can choose to initiate a data transfer. As illustrated in FIG. **22**, the first account user **29** via the second messaging client **20** sends a transfer request signal **430** to the first account user's first messaging client **14**. In response, the first messaging client **14** sends a connection discovery and verification signal **432** to the second messaging client **20**. The second messaging client **20** then sends an acknowledgement signal **434** to the first messaging client **14**. The acknowledgement signal **434** preferably includes verification data in which the first messaging client **14** can verify that the validity of the second messaging client **20**. In response to receiving the acknowledgement signal **434**, the first messaging client **14** sends a request for a key **438** to the message server **172**. Next, the message server **172** sends a key signal **440** to the first messaging client **14**. The first messaging client **14** then sends the data and key signal **442** to the second messaging client **20**. The key preferably includes a code by which the second messaging client **20** can access the messaging session **40**. The second messaging client **20** stores the transferred portion of the first client data **17** including the plurality of session data **36** and the key for the messaging session **40** in the memory of the messaging device in which the second messaging client **20** operates, and displays the session history **45** for

access and use by the first account user **29** on the display of the messaging client in which the second messaging client **20** operates. It will be appreciated by one of ordinary skill in the art that the data and key signal **442** can include session data for one messaging session or for a plurality of messaging sessions, the first client data **17** or a portion of the first client data **17**; and similarly that the second messaging client **20** can store one messaging session or a plurality of messaging sessions, the first client data **17** or a portion of the first client data **17** in memory in response to receiving the data and key signal **442**. The second messaging client **20** then launches the data transfer application **83** or alternatively runs the data transfer software contained within the second messaging client **20**. Further, the second messaging client **20** can cause the messaging device in which the second messaging client **20** operates to display the session history **45** received from the first messaging client **14** within the data and key signal **442** for viewing by the first account user **29**. Next, the second messaging client **20** sends a request for connection signal **444** to the message server **172**. In response, the message server **172** sends a security challenge signal **446** to the second messaging client **20**. The second messaging client **20** responds to the security challenge signal **446** with a security response signal **448** which may be calculated from the security challenge signal and the key to the message server **172**. Then the message server **172** sends an acknowledgement of transfer complete signal **450** to the second messaging client **20**. The messaging session **40** has now been transferred from the first messaging client **14** to the second messaging client **20**. Preferably, the second messaging client **20** also sends an acknowledgement of transfer to the message server **172**. (not shown)

The messaging session **40** continues between the first account user **29** and the second account user through the second messaging client **20** and the messaging client **26** as illustrated by the plurality of session messages **412** to **422**. The messaging session **40** continues seamlessly without the second account user being necessarily aware of the transfer of the portion of the first client data **17** including the plurality of session data **36** from the first messaging client **14** to the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that although only a second account user is shown in FIG. **22** by way of example, the messaging session **40** can continue seamlessly between a plurality of account users and associated plurality of messaging clients.

Preferably, the first messaging client **14** is disconnected from the messaging session **40** upon completion of the data transfer. (not shown) It will be appreciated by one of ordinary skill in the art that the first messaging client **14** can be automatically disconnected

from the messaging session **40** or alternatively the first messaging client **14** can be disconnected manually by the first account user **29**. Similarly, it will be appreciated by one of ordinary skill in the art that the first messaging client **14** can continue to be active in the messaging session **40** along with the second messaging client **20**. (not shown)

FIG. **23** is a signaling flow diagram illustrating the interaction between the elements of the messaging communication system **10,170,** according to the present invention. Specifically, FIG. **23** illustrates the interaction between the first messaging client **14**, the second messaging client **20**, the messaging client **26**, and the message server **172**. In accordance with the present invention, as illustrated in FIG. **23**, a second account user, such as the account user **30**, logs onto the messaging client **26** and sends a notification signal **388** to the message server **172**. For example, the messaging client **26** establishes the communication connection **28**. The notification signal **388** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the messaging client **26**. Preferably, the notification signal **388** further includes the second account identifier of the second account user. Similarly, a first account user **29** logs onto the first messaging client **14** and sends a notification signal **386** to the message server **172**. For example, the first messaging client **14** establishes the first communication connection **16**. The notification signal **386** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the first messaging client **14**. Preferably, the notification signal **386** also includes the first account identifier of the first account user **29**. It will be appreciated by one of ordinary skill in the art that alternatively, the notification signals **386** and **388** can be sent directly to one or more of the plurality of messaging clients **12**. In response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **390** to the messaging client **26**. The client availability signal **390** informs the second account user via the messaging client **26** that the first account user **29** is available for real time electronic communications such as for participation in one or more of the plurality of messaging sessions **24**. Similarly, in response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **392** to the first messaging client **14**. The client availability signal **392** informs the first account user **29** via the first messaging client **14** that the second account user is available for real time electronic

communications such as participation in one or more of the plurality of messaging sessions **24**. Next, the first account user **29** initiates the messaging session **40** with the second account user by sending a session message **424** to the message server **172**. The message server **172**, in response to receiving the session message **424** sends a messaging session participation request **426** to the second account user via the messaging client **26**. The messaging client **26** asks the second account user if he/she wants to participate in the messaging session **40** with the first account user **29**. When the second account user does not accept the messaging session participation request **426**, the process stops. (not shown) When the second account user does accept the messaging session participation request **426**, the messaging client **26** sends a messaging session participation acceptance signal **428** to the message server **172**. The message server **172**, in response to receiving the messaging session participation acceptance signal **428**, sends a session message signal **396** containing substantially the same message information as the session message **424** to the second account user via the messaging client **26**. In response to receiving the session message signal **396**, a window is created on the display of the messaging device in which the messaging client **26** operates and the session message, preferably along with the first account identifier of the first account user **29**, is displayed. . Next, the second account user via the messaging client **26** sends a response message **398** to the message server **172**. The message server **172**, acting as a store and forward device, sends a response message signal **400** to the first account user **29** via the first messaging client **14** containing substantially the same message information as the response message **398**. In response to receiving the response message signal **400**, the open window is updated on the display of the messaging device in which the first messaging client **14** operates and the session message, preferably along with the second account identifier of the second account user, is displayed. Although one session message **396** and one response message **398** is illustrated by way of example in FIG. **23**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** between the first account user's first messaging client **14** and the second account user's messaging client **26** can include a plurality of session messages and a plurality of response messages. Further, although the interaction of two account users and two messaging clients is illustrated by way of example in FIG. **23**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** can include a plurality of messaging clients and an associated plurality of account users.

According to the present invention, an account user can choose to launch data transfer software. As illustrated in FIG. **23**, the first account user **29** launches the data transfer software within the second messaging client **20** or alternatively the data transfer application **83**. Upon launching the data transfer application **83** or alternatively the data transfer software within the second messaging client **20**, the second messaging client **20** sends a notification of availability signal **452** to the message server **172**. In response, the message server **172** sends an availability signal **454** to the first messaging client **14** and an availability signal **456** to the messaging client **26**. Preferably the signals **452** and **454** include identification information for the second messaging client **20** such as the second client identifier **21**. As illustrated, after receiving the availability notification signal **454**, the first messaging client **14** sends a data signal **458** to the second messaging client **20**. The second messaging client **20** stores the received portion of the first client data **17** including the plurality of session data **36** for the messaging session **40** in the memory of its associated messaging device and causes the session history **45** to be displayed on the display of the messaging device in which the second messaging client **20** operates for access and use by the first account user **29**. It will be appreciated by one of ordinary skill in the art that the data signal **458** can include session data for one messaging session or for a plurality of messaging sessions, the first client data **17**, or a portion of the first client data **17**; and similarly that the second messaging client **20** can store one messaging session or a plurality of messaging sessions, the first client data **17**, or a portion of the first client data **17** in its memory in response to receiving the session data signal **458**.

The messaging session **40** continues between the first account user **29** and the second account user through the second messaging client **20** and the messaging client **26** as illustrated by the plurality of session messages **412** to **422**. The messaging session **40** continues seamlessly. It will be appreciated by one of ordinary skill in the art that although only a second account user is shown in FIG. **23** by way of example, the messaging session **40** can continue seamlessly between a plurality of account users and associated plurality of messaging clients.

Preferably, the first messaging client **14** is disconnected from the messaging session **40** upon completion of the data transfer. (not shown) It will be appreciated by one of ordinary skill in the art that the first messaging client **14** can be automatically disconnected from the messaging session **40** or alternatively the first messaging client **14** can be disconnected manually by the first account user **29**. Similarly, it will be appreciated by one

of ordinary skill in the art the first messaging client **14** can continue to be active in the messaging session **40** along with the second messaging client **20**. (not shown)

FIG. **24** is a signaling flow diagram illustrating the interaction between the elements of the messaging communication system **10, 170,** according to the present invention. Specifically, FIG. **24** illustrates the interaction between the first messaging client **14**, the second messaging client **20**, the messaging client **26**, and the message server **172.** In accordance with the present invention, as illustrated in FIG. **24**, a second account user, such as the account user **30**, logs onto the messaging client **26** and sends a notification signal **388** to the message server **172**. The notification signal **388** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the messaging client **26**. Preferably, the notification signal **388** further includes the second account identifier of the second account user. Similarly, a first account user **29** logs onto the first messaging client **14** and sends a notification signal **386** to the message server **172**. The notification signal **386** for example, includes the connection information (i.e.: IP address and number of the port assigned to the messaging client) of the first messaging client **14**. Preferably, the notification signal **386** also includes the first account identifier of the first account user **29**. It will be appreciated by one of ordinary skill in the art that alternatively, the notification signals **386** and **388** can be sent directly to one or more of the plurality of messaging clients **12**. In response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **390** to the messaging client **26**. The client availability signal **390** informs the second account user via the messaging client **26** that the first account user **29** is available for real time electronic communications such as participation in one or more of the plurality of messaging sessions **24**. Similarly, in response to receiving the notification signal **386** from the messaging client **26**, and receiving the notification signal **388** from the first messaging client **14**, the message server **172** sends a client availability signal **392** to the first messaging client **14**. The client availability signal **392** informs the first account user **29** via the first messaging client **14** that the second account user is available for real time electronic communications such as participation in one or more of the plurality of messaging sessions **24**. Next, the first account user **29** initiates the messaging session **40** with the second account user by sending a session message **424** to the message server **172**. The message server **172**, in response to receiving the session message **424** sends a messaging session participation request **426** to the

second account user via the messaging client **26**. The messaging client **26** asks the second account user if he/she wants to participate in the messaging session **40** with the first account user **29**. When the second account user does not accept the messaging session participation request **426**, the process stops. (not shown) When the second account user does accept the messaging session participation request **426**, the messaging client **26** sends a messaging session participation acceptance signal **428** to the message server **172**. The message server **172**, in response to receiving the messaging session participation acceptance signal **428**, sends a session message signal **396** containing substantially the same message information as the session message **424** to the second account user via the messaging client **26**. In response to receiving the real time electronic message signal **396**, a window is created on the display of the messaging device in which the messaging client **26** operates and the session message **46**, preferably along with the first account identifier of the first account user **29**, is displayed. . Next, the second account user via the messaging client **26** sends a response message **398** to the message server **172**. The message server **172**, acting as a store and forward device, sends a response message signal **400** to the first account user **29** via the first messaging client **14** containing substantially the same message information as the response message **398**. In response to receiving the response message signal **400**, the open window is updated on the display of the messaging device in which the first messaging client **14** operates and the session message, preferably along with the second account identifier of the second account user, is displayed. Although one session message **396** and one response message **398** is illustrated by way of example in FIG. **23**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** between the first account user's first messaging client **14** and the second account user's messaging client **26** can include a plurality of session messages and a plurality of response messages. Further, although the interaction of two account users and two messaging clients is illustrated by way of example in FIG. **23**, it will be appreciated by one of ordinary skill in the art that the messaging session **40** can include a plurality of messaging clients and an associated plurality of account users.

According to the present invention, an account user can choose to launch data transfer software. As illustrated in FIG. **24**, the first account user **29** launches the transfer software within the second messaging client **20** or alternatively the data transfer application **83**. Upon launching the data transfer application **83** or alternatively the transfer software within the second messaging client **20**, the second messaging client **20** sends a notification

of availability signal **452** to the message server **172**. In response, the message server **172** sends an availability signal **454** to the first messaging client **14** and an availability signal **456** to the messaging client **26**. Preferably the signals **452** and **454** include identification information for the second messaging client **20** such as the second messaging client identification **382**. As illustrated, after receiving the availability signal **454**, the first messaging client **14** sends a data signal **460** to the message server **172**. In response, the message server **172** sends a data signal **462** to the second messaging client **20**. The second messaging client **20** stores the received portion of the first client data **17** including the plurality of session data **36** for the messaging session **40** in memory and causes the session history **45** to be displayed on the display of the messaging device in which the second messaging client **20** operates for access and use by the first account user **29** on the second messaging client **20**. It will be appreciated by one of ordinary skill in the art that the data signals **460** and **462** can include session data for one messaging session or for a plurality of messaging sessions, the first client data **17**, or a portion of the first client data **17**; and similarly that the second messaging client **20** can store one messaging session or a plurality of messaging sessions, the first client data **17**, or a portion of the first client data **17** in memory in response to receiving the data signals **460** and **462**.

The messaging session **40** continues between the first account user **29** and the second account user through the second messaging client **20** and the messaging client **26** as illustrated by the plurality of session messages **412** to **422**. It will be appreciated by one of ordinary skill in the art that although only the first account user **29** and a second account user are shown in FIG. **23** by way of example, the messaging session **40** can continue seamlessly between a plurality of account users and associated plurality of messaging clients.

Preferably, the first messaging client **14** is disconnected from the messaging session **40** upon completion of the data transfer. (not shown) It will be appreciated by one of ordinary skill in the art that the first messaging client **14** can be automatically disconnected from the messaging session **40** or alternatively the first messaging client **14** can be disconnected manually by the first account user **29**. Similarly, it will be appreciated by one of ordinary skill in the art the first messaging client **14** can continue to be active in the messaging session **40** along with the second messaging client **20**. (not shown)

Although the invention has been described in terms of preferred embodiments, it will be obvious to those skilled in the art that various alterations and modifications may be made without departing from the invention. Accordingly, it is intended that all such alterations

and modifications be considered as within the spirit and scope of the invention as defined by the appended claims.

What is claimed is: